A DESCRIPTION OF THE RELATIONSHIP BETWEEN PROCESS MANAGEMENT AND THE QUALITY SCHOOLS MODEL IN THREE RURAL ALASKA SCHOOL DISTRICTS

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Abstract

This study, conducted as part of a cohort of four, included three districts that follow the Quality Schools Model of educational reform. It used a mixed methods research paradigm to describe how one particular reform evaluation criterion, process management, is believed to be important and to be in practice as a part of the Quality Schools Model (QSM). Process management is the pertinent techniques and tools applied to a process to implement and improve process effectiveness.

In this study, I sought to answer four research questions that are fully described in Chapter 3. Three of these questions explored stakeholders' perceptions about the importance of process management in contrast to their perceptions about the extent to which process management was actually in practice in the studied districts.

The results of the analysis of the responses showed that there were few significant differences among the respondents. However, stakeholders' perception about the extent to which process management was actually in practice varied significantly with their job classification, but did not vary significantly with either their level of educational work experience or their years of experience with the QSM.

Question four of this research was common to the cohort and explored the inter-relationship of the seven Malcom Baldrige in Education Criteria in the three districts. The Malcom Baldrige in Education Criteria are a method to evaluate the quality of a school district. The cohort used structural equation modeling (SEM) to answer this question. The data supported a model that shows general agreement with the hypothesized model that is included with the Baldrige literature.

While this research was specific to the QSM, others who are pursuing systemic educational reform should consider the implications. They are: holistic educational reform is dependent on well established processes; leadership does not have a direct influence on results; a school district's shared vision must be comprehensive to allow optimum learning conditions through the effective establishment of coproduction; and Total Quality Management practices should be included as a way to ensure staff does its best.

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Preface

This dissertation is one of four to study the implementation of the Quality Schools Model (QSM) in three rural Alaska school districts. I was a member of a cohort of four doctoral students who because of a shared an interest in education reform in Alaska, followed a common core of coursework, collected a common body of research data, and shared faculty and some dissertation committee members. Because we were particularly interested in one manifestation of education reform, the QSM, we shared the same "stem" for our individual research questions. Each of us studied the implementation of the QSM from a different perspective from which to write individual dissertations. The four cohort members and their dissertation topics were:

Steve Atwater- Process Management: Its Relationship to the QSM in Three Rural Alaska School Districts

Dale Cope – Knowledge Management: Its Relationship to the QSM in Three Rural Alaska School Districts

Robert Crumley - Leadership: Its Relationship to the QSM in Three Rural Alaska School Districts

Susan McCauley – Staff Focus: Its Relationship to the QSM in Three Rural Alaska School Districts

Creamer (2004) and Dorn and Papalewis (1997) wrote that it is helpful for cohort members in professional programs to share some common background experience. The four members of this cohort, two men and two women, were all mid-career professionals with educational administration experience. All of the members have some experiences in

rural Alaska, both professional and personal, and are long-time residents of the state. The four agree with Miller's (1996) sentiments that cohort members, each with their unique network, contribute to a larger pool of resources for the benefit of the group. Another benefit of working as a cohort is the variety of social/emotional strengths; group members are able to share the roles of energizer and encourager.

Vygotsky (1988) said that learning is a profoundly social process that is dependent on dialogue and language. The social process of learning helps individuals internalize knowledge and fit it into or expand their mental models. Effective cohorts create a culture where differences of opinion are valued, are routine, and are open to discussion (Creamer, 2004). Further, Creamer wrote, "What is instrumental to the outcomes of collaborative research, and how innovative it is, is the extent that collaborators engage in dialogue about different and sometimes contradictory explanations for the phenomenon under study" (p. 568). According to Salter and Hearn (1996), this critical discourse is at least as important as consensus in the process of knowledge creation. And, critical discourse is most likely to contribute to knowledge creation and transfer when it occurs in the context of community, which a cohort is, where there is a commitment to a common goal and members share a sense of affiliation. Several researchers state that cohorts develop a collective personality (Dorn and Papalewis, 1997; Wesson et al., 1996). Our cohort did take on a unique personality. We became a "living laboratory" as we internalized theory into practice related to the concepts we were studying: We looked for best practice in literature and research; we discussed our work as a community of practice; we shared leadership; and we developed

processes related to leadership and knowledge management of our research. We feel that the experiences of this cohort support research findings about the benefit of cohort collaboration for doctoral program completion.

Acknowledgements

This dissertation is dedicated to the memory of my father, Jim Atwater, who on his death bed encouraged me to take the next step in my education and earn my doctorate. I know that much of my ability to persevere through the trials of the dissertation process can be attributed to him.

When I first began the journey down the lane of writing this dissertation, several friends joked that it would ruin my marriage, cause my hair to fall out and generally make me a miserable person. I am happy to report that although there were certainly some low points in reaching the end of this lane, I am still happily married and relatively healthy. It should be noted however, that this would not be the case without the support of several people.

Foremost of these are the two most important people in my life, my wife Barbara and son Ethan. Their support and prayers for me during this process are what kept me going. Next, are my cohort members, Bob Crumley, Dale Cope and Susan McCauley. Each of these three inspired and taught me a great deal during our three years together. I am thankful to Dr. John Monahan for having the fortitude to push through this first-ever Ph.D. cohort at UAF. I know that without his vision for this process the four of us would have sought this degree from an out-of-state university. Finally, I want to thank my other committee members, Dr. Eric Madsen, Dr. David Porter and Dr. Jim Allen for embracing the cohort approach, offering sage advice and for having patience with the editing of my earlier drafts.

CHAPTER 1: INTRODUCTION

This dissertation studies the implementation of the Quality Schools Model (QSM) of educational reform in three rural Alaska school districts. It is a descriptive inquiry that reviews the implementation of this model through the lens of the seven Malcom Baldrige Education Criteria for Performance Excellence. This research was done in collaboration with a cohort (four members) all of whom used the same research instrument. This study makes a critical distinction between the extent to which stakeholders perceive QSM elements to be important to them personally (henceforth, "important") and the extent to which they perceive those same elements to be in daily use in schools and classrooms (henceforth, "in practice"). The cohort's study attempted to determine the extent of the perceived importance and practice of four of these Baldrige criteria, leadership, knowledge management, staff focus and process management on how well the QSM can be sustained by the host school district. Process management, the pertinent techniques and tools applied to a process to implement and improve process effectiveness, is the focus criterion of my research. The results of this inquiry are from an analysis of quantitative data calculated from the questionnaire responses of a sampling of the three districts' certified and classified staff members. The cohort triangulated the data with qualitative data gathered through interviews of a criterion-based sample of certified and classified staff and community members from two of the districts. The third district, Kuspuk, declined to participate in the interviews. In this chapter, the backdrop to the study is outlined, including the argumentative thread that runs through it, the formal

statement of the problem that the inquiry addresses, a summary of the study's professional significance and finally, an overview of its methodology.

1.1 Backdrop to the Study

In 1976 Alaska eliminated its state operated school system to instead create a series of locally controlled, regional school districts. The majority of these districts serve Alaska Native students in the state's rural areas. Three of these school districts, Bering Strait, Kuspuk and Lake and Peninsula, are included in this research. From February 2001 until June of 2008 I served as the superintendent of the Lake and Peninsula School District.

The Bering Strait School District is a Rural Education Attendance Area (REAA) located on the west coast of Alaska. The district serves fifteen widespread and diverse villages, and has a total enrollment of approximately 1,700 students. The area includes villages on the Seward Peninsula and Norton Sound as well as on St. Lawrence and Little Diomede islands. The distance between the furthest two schools in the district is approximately 350 miles. Many children in the communities of Gambell, Savoonga and Diomede speak Siberian Yup'ik as their primary language. The largest school, Savoonga, is located on St. Lawrence Island and has 219 students and 21 certified staff members. Overall, the district has 174 classroom teachers, fifteen principals, and five assistant principals. At the district office there are seven certified support positions, four directors, five coordinators, and the superintendent. An eleven member school board governs the district. Close to 100% of the students are Alaska Native and over 80% of the district is limited English proficient. 86% of the students are eligible for free or reduced lunch. The

Bering Strait School District began its implementation of the QSM in 2002 and was the subject of a case study by Reagle (2007) which focused on community voice in the implementation process of the QSM.

The Kuspuk School District is a REAA with ten schools in eight villages serving approximately 414 students. The district is located in western Alaska along the Kuskokwim River between the villages of Stony River and Kalskag. The district covers over 12,000 square miles. The school district offices are located in Aniak, which is about 320 miles west of Anchorage. The regional economy is based primarily on subsistence fishing, hunting, and gathering. Most of the district's population is Yup'ik or Athabascan. The majority of students has limited English proficiency (90%) and is low income (80%). Kuspuk School District first moved to implement the QSM in 2003.

The Lake and Peninsula Borough School District serves 380 students in fourteen village K-12 schools. 42 classroom teachers for a pupil-teacher-ratio of 9:1 staff the district's schools. In addition, 4 special education teachers, 3 specialists, 5 principals and 4 district level administers make up the certified staff. The District is located on the Alaska Peninsula and is roughly the size of West Virginia. Ninety percent of the district's students are Alaska Native (Alutiiq, Athabascan, and Yup'ik) and about 70% of these students are eligible for free or reduced lunch. A seven member board governs the district with three members from the south's seven villages, 3 from the seven north area villages, and one member at large. The economy of the region is based on commercial fishing with the mineral industry beginning to play a more significant role in this area. The first stage in implementation of the Quality Schools Model occurred in the fall of 2001.

Since their formation, Alaska's rural districts (including the studied three) have pursued a myriad of educational reform efforts that have failed to significantly improve the academic standing of their students. While dropout rates among all regions in Alaska were similar in 1992, by 2002 Alaskan regions with the highest Native enrollment had significantly higher dropout rates (Goldsmith et al., 2004, pp. 6-13). National Assessment of Educational Progress (NAEP) data from 1996 and 2003 show that non-Native students were about three times more likely than Alaska Native students to score proficient in math and reading in both fourth and eighth grades (in Goldsmith et al., pp. 6-16). Data from the 2006 administration of the Alaska High School Graduation Qualifying Exam, on which students must score "proficient" in order to receive a high school diploma, show that while 74% of all 10th graders who took the reading portion passed, only 51% of Alaska Native students passed, compared to 86% of White students (Institute of Social and Economic Research, 2005, p. 38).The Adequate Yearly Progress status of the state's village schools from 2002-2006 illustrates this lack of progress (see Figure 1.1).

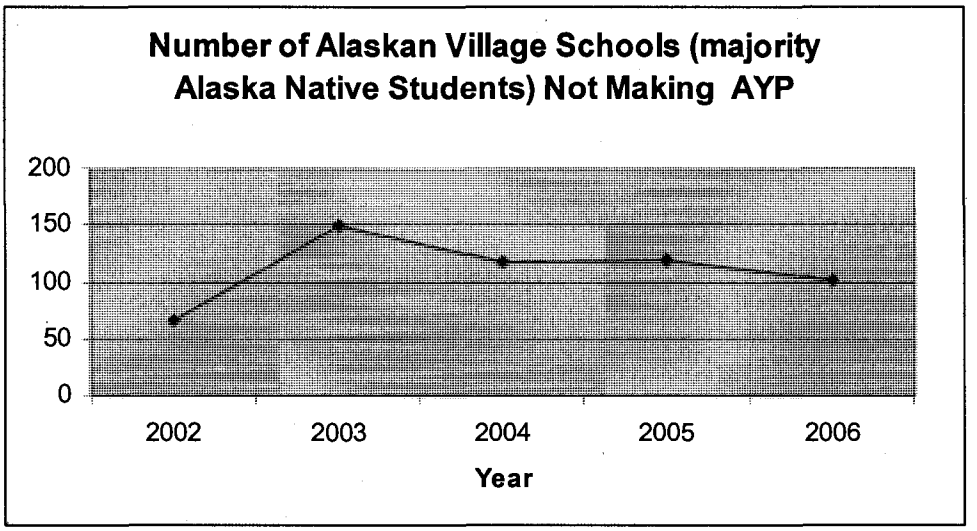

Figure 1.1: **Summary** of Alaska's village schools not making AYP

Recent educational reform literature (Fullan, 2001a, 2003; Sallis, 1993; Schlechty, 2001) suggests that ad hoc, episodic initiatives (Duffy, 2003) are rarely successful because they are not systemic in their approach and hence, have little chance of being sustained. Cuban (1990a) argues that reform efforts fail because the problems and the solutions are mismatched.

> It is important to policy makers, practitioners, administrators, and researchers to understand why reforms return but seldom substantially alter the regularities of schooling. The risks involved with a lack of understanding include pursuing problems with mismatched solutions, spending energies needlessly, and accumulating despair. We can do better by gathering data on particular reforms and tracing their life history in particular classrooms, schools, districts, and regions. More can be done by studying reforms in governance, school structures, curricula, and instruction over time to determine whether patterns exist. (p. 11)

In the case of Alaska's rural districts, my experience leads me to believe that these reform efforts have not brought the desired changes for precisely these two reasons: inability to sustain the effort and not appropriately tackling the most pressing reason for the problem. Furthermore, a lack of attention given to the area of process management, the focus of this dissertation, may have acted as a limiting factor in the effort's design to promote student achievement. Cohen and Levinthal (1990) nicely summarize the mistake of not properly tending to an organization's processes: "A competency trap can occur when favorable performance with an inferior procedure leads an organization to accumulate more experience with it, thus keeping experience with a superior procedure inadequate to make it rewarding to use" (p. 322).

In recent years however, several of the state's rural districts have pursued reform by implementing the Quality Schools Model, a systemic approach to educational change. The QSM is designed to be comprehensive enough to build sufficient capacity to overcome the limitations of the above mentioned programmatic and often misguided initiatives toward school improvement. This research examined the perceived existence and importance of the Baldrige in Education Criteria in the three stated rural Alaska school districts. The Baldrige Criteria is a systemic way of reviewing the Quality Schools Model.

In the late 1990s, the Chugach School District (CSD), a small organization primarily serving Alaska Native students in Prince William Sound, developed the Quality Schools Model of educational reform. The QSM is a standards-based reform model that utilizes best practices from education (Zemelman, et al., 1998), e.g., differentiated

instruction, and from the world of business, e.g., continuous improvement. Since CSD's development of the model, several districts throughout rural Alaska have replicated it. In contrast to the series of reform efforts that are currently in vogue as a part of the No Child Left Behind accountability movement, e.g., the Reading First Initiative, the QSM's systemic approach toward schooling gives attention to four broad areas of a district's organization: leadership, the shared vision of the district's stakeholders, standards-based design (the nuts and bolts of teaching and assessing), and continuous improvement. Furthermore, the QSM addresses most of what Chudowsky, et al., (2002) describe as the necessary pieces of educational reform. These include: the use of quality standards in multiple content areas, well designed assessments, accountability and professional development, help for students, better information, clearer policies, and monitoring impacts.

The QSM makes use of several of the best practices in instruction (Table 1.1) identified by Lezotte (1991), including individualized learning plans created by students and teachers. Graduation in the model is competency-based, and is a result of clearly defined expectations, established routes for achievement and self-directed responsibility for learning. Besides the comprehensive nature of QSM, there are several key facets of the model that separate it from other reform efforts. The foremost of these is that time is not considered as a variable when determining student advancement. Students can only advance when demonstrating proficiency on the standards; the end of a semester has no bearing on this. As such, there is an increased focus on the individual and an elimination of grades or age grouping of pupils. This difference is exemplified by high school

students in this model not earning Carnegie units in which credit is tied to a fixed amount of seat time. A second difference is the attention given to educating the whole child. Students in the model must show proficiency in areas such as personal social health, service learning, and cultural awareness. Hence, content areas that are often left to student choice through electives are required fare for students in QSM districts.

By recognizing the importance and interdependence of the four components of the model, QSM organizations become structured in a non-traditional manner. This move to a less bureaucratic organizational structure is deemed as an intricate part of the Quality Schools Model. The QSM then, should be viewed as a guide for both strategy, the long term goals and objectives of an organization and the actions adopted and resources allocated as necessary for carrying out the goals (Chandler, 1962), and structure for education reform. It is thus fair to state that the QSM leads a district's organizational structure away from the classic hierarchal model to one that is more fluid. It is this structural change that QSM school districts undergo that is the driving force behind this research. A complimentary piece of this structural change is the QSM's close tie with the Quality Movement that is Total Quality Management (TQM). The inclusion of TQM in the Quality Schools Models was the foundation on which the selection of the organizational evaluation tool was based. With this in mind, the cohort chose the Malcom Baldrige Quality Program Education Criteria for Performance Excellence as the way to examine the implementation of the QSM in the selected three rural Alaska districts.

Table 1.1: Best Practices in Education Found in the QSM (Lezotte, 1991)

Best Practices in Instruction Found in the QSM
Cooperative groups; Individualized
Facilitator; Visionary Instructor
Hands-on learning
Relevant curriculum
Flexible; willing to change; willing to risk
Topical/Thematic organizational structure
More technology

The Malcom Baldrige Education Criteria for Performance Excellence is a public-private sector partnership whose mission is to improve the performance of U.S. organizations. The award, named after the 26th U.S. Secretary of Commerce, came into existence in 1987. Twelve years later, President Clinton expanded the Criteria to include health care and education. Educational organizations now use the seven education criteria (leadership; strategic planning; student, stakeholder, and market focus; measurement analysis and knowledge management, process management and results) as a diagnostic tool to identify strengths and opportunities for improvement (NIST, 2006). Because the criteria focus on organizational performance, one can use them to apply a systems perspective to a school district. With this in mind, the cohort decided that these criteria were an appropriate way to examine the implementation of the Quality Schools Model.

The table in appendix A details the seven Baldrige categories and their associated point values

1.2 Background of the Study

Academic standards became a major part of the education landscape soon after the release of the 1983 report, *A Nation at Risk* (Ravitch, 1996). The 1992 establishment of the National Council on Education Standards and Testing and the subsequent Goals 2000 Act that provided funds for states to develop standards and assessments led to the adoption of standards at the district level (Sandholtz, et al., 2004). This trend toward the development of local standards however, slowed with the onset of the accountability portion of the No Child Left Behind Act of 2001. These accountability requirements instead prompted or forced districts to adopt programs or quick remedies that more often than not, have led to frustration for students and school staff because of the lack of sustained improvements (Dale, 2003).

1.2.1 Business Theory and Education

Recently, there has been a move away from programmatic changes to efforts that are more systemic in nature. At the national level this change was seen with federal support of the Comprehensive School Reform (CSR) Initiative. I feel that federal backing of the CSR is recognition that simply adopting the latest program is not enough to affect long-term change. The recent spate of literature on systemic reform in education (Levine, 2005; Fullan, 2001b, 2003) confirms that schools are increasingly looking to holistically examine themselves and then make the appropriate improvements. As does the QSM, many of these systemic reform efforts glean best practices from the business world, in

particular the theory of Total Quality Management that was advanced by Deming (2000) and Juran and Godfrey (1999) following World War II.

Briefly, TQM can be viewed as a "philosophy and a methodology that assists organizations to make change, and to set their own agendas for dealing with the plethora of new external pressures" (Sallis, 1993, p. 3). Continuous improvement, one of the components of QSM, is an intricate part of the TQM culture; it is a long and never-ending journey. TQM is viewed as a meaning system. A meaning system is a framework of understanding that reflects certain beliefs, actions and values (Berger and Luckman, 1966). Since TQM processes generate a customer-responsive environment in which employees can contribute to achieving the organization's mission, vision and strategic objectives (Kirk, 1992), the connection with the shared vision component of QSM can be easily made. However, the suggestion that a school district should be managed using the same approaches as business is often met with reservation by education administrators.

Arguments about applying business practices to education have been going on for decades. There are those who believe that because education is an open-system, i.e., schools are not autonomous closed-systems because crucial variables are not within their boundaries (Thompson, 1967), the application of business theory to education is flawed. Furthermore, using business perspective with education services (product) and students (customers) make the application of business practices to schooling a struggle (Poston, 1997). One can look to Vollmer's (2002) popular blueberry story for evidence of this resistance. In his story Vollmer states that business's ability to control the quality of the raw product, i.e., blueberries, sharply differs from the public school system that is

required to maintain open enrollment and hence, has no control over the quality of the enrolled students. Further, this quandary is exemplified by the idea that the student and teacher coproduce education services. That is, unlike the business world where production is controlled, in education both the teacher and the student are responsible for the learning.

On the other hand, some critics of education argue that schools, unlike businesses, are "typified by an absence of measurable goals, loose coupling, little direct connection between acquired resources and products, an ability to ignore major constituencies, and ...a tradition of resistance to assessments of effectiveness" (Cameron, 1986, p.88). And while it is true that the open system of education does not perfectly mesh with the closed system practices of business, the move by educational organizations to glean what is applicable from closed systems theory (the focus on those variables that are positively associated with its goal achievement) has helped to counter the limiting factors, i.e., the organizational interdependence with the task environment of the open system. This incorporation of parts of closed system theory, e.g., process management, by the three rural Alaskan Quality School Model districts in this study is relatively new and therefore worthy of research.

Another important consideration when reviewing how business theory relates to the Quality Schools Model is the concept of multiple division organization that is used by many large corporations (Porter, 2006). In multiple division organization, design activities are divisible into relatively independent bundles of activity. An analytical staff that has the power to discipline the actions of the various groups supports the central

guidance group. Summary statistics allow interdivisional comparisons for purposes of evaluating the performance of division (Chandler, 1962). In the QSM, this approach toward organization management may be viewed as central to its continuous improvement component. While the multiple division design is not new to business, it is only recently that school districts have begun to organize in this way. Ironically, in the area of data management, the No Child Left Behind Act which has caused schools to disregard much of the basic premise of the QSM e.g., educating the whole child, has acted as a catalyst for moving schools toward this more analytical approach of management. The recent emphasis on data-driven instruction is evidence of this.

Prior to adopting the QSM, the three studied districts' reform efforts were either programmatic or designed to overcome the ineffectiveness of schooling minority children in the majority culture's mode of schooling. For example, the three regularly adopted new content programs and, when possible, made improvements to the students' education by incorporating a culturally-based approach into their schooling. The Quality Schools Model, when fully implemented, addresses both of these areas. The instructional model advises teachers to take the taught concepts to a real-life (culturally relevant) application, while the model's standards and associated assessments are focused so that the most appropriate resources are used. These standards, which serve as its foundation, are written to reflect the local cultural values and beliefs. The aforementioned attention to the parts of the educational organization that uses practices from the business world is the third section of the model and is one that separates it from other reform efforts that the

districts have pursued. Table 1.2 summarizes many of the major differences between the QSM and the more traditional approach toward schooling.

As noted, continuous improvement is a business practice of this reform model that closely aligns with Total Quality Management and implementation of the QSM necessarily includes attention to aligning an organization's actions with its intentions. One of the primary ways to make this happen is to give sufficient attention to the area of process management.

Processes are a "series of actions, changes, or functions that bring about a desired result" (Grayson, 2006, p. 28). Although processes are often not identified or formalized, they are the way we work. Processes may be viewed as an analytical tool since they offer insight into the realities of the work place.

Table 1.2: Comparison of Quality Schools Model with a Traditional School System

Traditional School	**Quality Schools Model**
Grade-level oriented—individual student needs are not met	Individual Learning Plan for each student
School and classroom-centered approach to curriculum and instruction	Student-centered
Credits and emphasis on "seat-time"—student must do the time	Standards-based system advancement based on student knowledge, not seat time
Lockstep K to 12 grade system	Non-grade, development organization
Disconnected letter grade reporting	K-12 narrative standards-based report card

Table 1.2 Continued

Traditional School	**Quality Schools Model**
Traditional assessments based on the textbook and material covered during instruction	Skills-based assessments-Self, Analytical and Contextual-and related to standards
Textbook driven curriculum	Standards-based, project-oriented Curriculum
Poor transition system between grades	Electronic student profile that follows Student
Distanced from community members	Local community involvement intrinsic to standards and curriculum
No "School-to-life" Plan	Comprehensive "School-to-life" built into the curriculum

Processes may also be viewed as a way to better understand a school system's management behavior. That is, an analysis of processes will offer a view of the "links among activities, showing that seemingly unrelated tasks, e.g., a phone call, are a part of a single, unfolding sequence", (Garvin, 2002, p.2). At the school district level if you think in terms of inputs and outputs processes are how you get from one to the other.

With the changes brought on by the No Child Left Behind Act, there is now more attention than ever devoted to outcomes. Many school districts have responded to this need to improve their outcomes by altering and increasing the input side of schooling.

Inputs such as adopting new resources, hiring specialists and increasing the amount of money spent on the system have been added as a way to increase student performance. There has not however, been a corresponding level of attention to processes. The American Productivity & Quality Center Study called Process Improvement and Implementation in Education (Grayson, 2006), shows that a high level of change on the input side of things did not lead to dramatic increases in student performance. In sum, the study suggests that an improvement model must include attention to processes.

The management of processes ensures that they are defined, controlled, effective, efficient, and adaptable (Reid, 1992). This dissertation used process management, one of the Malcom Baldrige Award Criteria for Performance Excellence, to examine its relationship to the QSM in the three studied districts.

1.3 Statement of the Problem

The purpose of this research was to examine faculty, staff and community members' (of three rural Alaska school districts) perception of the importance and existence of the seven Baldrige in Education Criteria in their home district. Specifically, the emphasis of the research was to explore the process management criterion and to gather data that may be used to generate information that other school districts or researchers might find useful in implementing the QSM.

1.3.1 Research Questions

This study explored the following research questions.

Research Question 1: To what extent do administrators, staff, and community members perceive Process Management to be important as a part of the Quality Schools

Model in their schools?

Hypotheses:

1. Certificated staff and classified staff differ in the extent to which they perceive Process Management factors to be important in their schools.
2. Responses of the respondents with more educational work experience differ from those with less educational work experience in the extent to which they perceive Process Management factors to be important in their schools.
3. Responses of the respondents with more experience in the Quality Schools Model differ from those with less experience in the Quality Schools Model in the extent to which they perceive Process Management factors to be important in their schools.

Research Question 2: To what extent do administrators, staff, and community members perceive Process Management to be in practice as a part of the Quality Schools Model in their schools?

Hypotheses:

1. Certificated staff and classified staff differ in the extent to which they perceive Process Management factors to be in practice in their schools.
2. Responses of respondents with more educational work experience differ from those with less educational work experience in the extent to which they perceive Process Management factors to be in practice in their schools.

3. Responses of respondents with more experience in the Quality Schools Model differ from those with less experience in the Quality Schools Model in the extent to which they perceive Process Management factors to be in practice in their schools.

Research Question 3: Are there statistically significant differences between the extent to which respondents perceive Process Management to be important and the extent to which they perceive Process Management items to be in practice as part of the Quality Schools Model in their schools?

Hypotheses:

1. The difference between the extent to which respondents perceive Process Management factors to be important and the extent to which they perceive Process Management factors to be in practice vary for certificated staff and non-certificated staff.
2. The difference between the extent to which respondents' perceive Process Management factors to be important and the extent to which they perceive Process Management factors to be in practice vary for respondents with more and less years of educational work experience.
3. The difference between the extent to which respondents perceive Process Management factors to be important and the extent to which they perceive Process Management factors to be in practice vary for participants with greater than and fewer than 3 years of experience with the Quality Schools Model.

Research Question 4: What are the relationships among the Baldrige Criteria that describe the Quality Schools Model?

Hypotheses:

1. The variable of Process Management has a direct effect on the Baldrige Criteria variable Results.
2. The variable of Process Management affects the Baldrige Criteria variable Results through the Faculty and Staff Focus Criteria

1.4 Significance of the Study

This research has professional significance for three reasons. First, there is an absence of empirical data on rural Alaska districts implementing the Quality Schools Model. Two studies by Jester (2002, 2005) looked at the Chugach School District and their development of the QSM. Jester focused on the socio-cultural implications of the model for the Alaska Native families involved with the QSM's adoption and on the political process of the educational transfer to the QSM. There is no research however, on the specific longer term impacts of the systemic reforms inherent in the QSM and its use of best practices that are included in Total Quality Management. Furthermore, the use of the Baldrige in Education Criteria, while not new as an educational research tool, have not been used by the three studied school districts to review their implementation of the Quality Schools Model.

A second reason of significance is that over the past six years 14 Alaska districts and schools attempted to adopt the QSM. But today, only five districts continue their efforts to implement the QSM. This research will hopefully reveal whether the Baldrige

in Education Criteria must be in place for the QSM to be sustained. In short, the research will be useful to a future study that examines whether the QSM model was dropped by districts because of a lack of attention given to this research's criteria.

A third reason this research is significant is that the results of the study will be immediately meaningful to educators who are looking for evidence that a systemic approach toward educational reform that includes tools from Total Quality Management is worth pursuing.

1.5 Methodology

The cohort's research focused on three rural Alaska school districts that have implemented the Quality Schools Model of educational reform. The study used a concurrent mixed-methods approach (concurrent nested) to determine teachers', administrators' and community members' perceptions of the importance and practice of the Baldrige Criteria in Education in their school and school district. A structured questionnaire was administered to employees of the three school districts. A smaller subset of certified staff, classified staff, and community members of these districts were interviewed using a structured but open-ended protocol. Participation was voluntary on the part of each school district and permission to cooperate in the study was received from each district superintendent. The methodology is described in detail in chapter 3. We electronically administered the questionnaire to all staff members with district email accounts in the spring of 2007 and conducted the interviews in the fall of 2007.

Looking ahead, Chapter 2 offers a detailed review of the literature that is relevant to the Quality Schools Model, process management in education, the standards

movement, and recent educational reform efforts. It also explores how business practices may be adapted to education. Chapter 3 describes the cohort's methodology used for this research. Chapter 4 presents the analysis of the questionnaires, and interviews that are the foundation of this research. Chapter 5 summarizes and evaluates the results.

1.6 Definition of Terms

Because the terms below are important to understanding this dissertation, I offer brief definitions here

Absorptive Capacity – The ability of individuals and organizations to recognize the value of new, external information, assimilate it, and apply it to achieve results.

Closed System - A system that incorporates only organizational variables associated with goal achievement.

Continuous Improvement - A term commonly used in quality management systems. It refers to an organization's deliberate and planned processes to continuously improve performance.

Cultural knowledge - Cultural knowledge refers to recording an organization's experiences in order to develop new actions that depend on what has been recorded.

Double Loop Learning - In single-loop learning, individuals, groups, or organizations modify their actions according to the difference between expected and actual outcomes. In double-loop learning, the individuals, groups or organization question the values, assumptions, and policies that led to the actions in the first place. If they are able to view and modify these, then second-order or double-loop learning takes place.

Multiple Division - A type of organizational design that combines activities into relatively autonomous bundles. An analytical staff that collects summary statistics to facilitate interdivisional comparisons for purposes of evaluating the performance divisions supports the central headquarters

Process Improvement- Increasing the effectiveness of a process incrementally-improvement is done on an ongoing basis through small changes to the components of the process, including adding or deleting a process activity or measure

Process Management - The application of knowledge, skills, tools, techniques and systems to define, visualize, measure, control, report and improve processes with the goal to meet the organization's requirements in an efficient manner.

Total Quality Management - This is a general process framework that grew out of Deming's work in Japan after WWII. The framework focuses on specifying the processes necessary to ensure incremental process improvements. Unlike most process frameworks, this one also provides a large number of intellectual tools used during process improvement and it also defines some processes in considerable detail.

CHAPTER 2: REVIEW OF THE LITERATURE

2.1 Education Reform

The Quality Schools Model is a model of educational reform that seeks systemic and sustainable changes to the educational process. Its design reflects an understanding of both what has and what hasn't been effective over a long history of educational reform efforts in the United States. This first section provides a review of the history of education reform in this country.

2.1.1 Prior to a Nation at Risk

A Nation at Risk (1983), the report by the National Commission on Excellence in Education, is frequently cited as the catalyst for modern education reform in the United States. Its warning of a "rising tide of mediocrity that threatens our very future as a Nation" and "motivated more significant changes in the manner in which American K-12 public schools conduct business than virtually an event or condition preceding it" (Guthrie and Springer, 2004). However, several events preceding the report laid the groundwork for the reform that occurred in response to the report.

The Elementary and Secondary Education Act, signed into law by President Lyndon Johnson in 1965 as part of his "War on Poverty," increased the federal government's authority over schools by providing targeted resources to disadvantaged students (Johnson, 1965). Title I of this legislation imposed fiscal accountability on states and districts by requiring them to use federal money only on schools with the highest concentrations of poverty; to equalize the amount spent on these schools to that allocated to schools not receiving federal education dollars; and to use Title I funds as a

supplement to, rather than a replacement for, local spending (Wong, 2003). Johnson (1966) purported that "every one of the billion dollars that we spend on this program will come back tenfold as school dropouts change to school graduates." The Coleman Report however, would soon challenge this contention.

The Coleman Report, written by James Coleman et al. (1966) and officially titled "The Equal Educational Opportunity Survey," was a congressionally mandated study by the U.S. Office of Education investigating the effects of school resources on student achievement. The results were interpreted by many to suggest that schools have little effect on student achievement, though some have argued that "this interpretation confuses the effects of measured differences with the full effects of school and has been shown to be wrong," (Hanushek, 1998, p. 19). The findings of the *Coleman Report* were controversial, and other researchers responded to what they considered fatalistic conclusions from this report with research of their own. One early team of researchers, Klitgaard and Hall (1974) challenged the methodology of Coleman's input/output studies. They claimed that because the study examined the average effect of all schools in a sample on student outcomes, it measured only general effects and that the effectiveness of individual students could be masked and some effective schools might be unnoticed. Both proponents and critics of the report leveraged it in ways that influenced the larger political platform of education reform, as well as the specific structures of school reform models.

In 1980 the U.S. Department of Education was created by combining offices of several federal agencies. Its original mission addressed the issue of equality of access

studied in the *Coleman Report* by committing to "strengthen the federal commitment to assuring access to equal educational opportunity for every individual," (U.S. Department of Education, n.d.). The Department's purpose also reflected one of the continuing debates of education reform, centralized or decentralized authority over schools. In Public Law 96-88 (1980, sec. 319) Congress declared the purpose of the Department of Education was to "protect the rights of State and local governments and public and private educational institutions in the areas of educational policies and administration of programs and to strengthen and improve the control of such governments and institutions over their own educational programs and policies." The soon-to-be released *A Nation at Risk* report would seriously call into question the autonomy of local authority over education, and capitalize on research regarding what constitutes effective schooling.

A 1979 report by Ron Edmonds synthesized the research and experimentation of the previous decade toward identifying the common characteristics of schools that were achieving success in educating all students regardless of family background or socioeconomic status. This work had grown largely in response to the controversial *Coleman Report* which focused on a student's family background as a primary factor in determining his or her success in school. Edmonds' effective schools research named seven interrelated indicators or conditions that influence student learning. Lezotte (1991) explained these factors, called "Correlates":

> *Clear School Mission* - In the effective school, there is a clearly articulated school mission that includes instructional goals, priorities, assessment procedures, and

accountability. Staff accepts responsibility for students' learning the school's essential curricular goals.

High Expectations for Success - In the effective school, there is a climate of expectation in which the staff believes and demonstrates that all students can attain mastery of the essential content and school skills, and the staff also believes that they have the capability to help all students achieve that mastery.

Instructional Leadership - In the effective school, the principal acts as an instructional leader and effectively and persistently communicates a mission of instructional leadership to the staff, parents, and students.

Frequent Monitoring of Student Progress - In the effective school, student academic progress is measured frequently using a variety of assessment procedures. The results of the assessments are used to improve individual student performance and also to improve the instructional program.

Opportunity to Learn/Student Time on Task - In the effective school, teachers allocate a significant amount of classroom time to instruction in the essential content and skills. Whole class or large group, teacher-directed, planned learning activities are evident a high percentage of time.

Safe and Orderly Environment - In the effective school, there is an orderly, purposeful, businesslike atmosphere which is free from the threat of physical harm. The school climate is not oppressive and is conducive to teaching and learning.

Home - School Relations - In the effective school, parents understand and support the school's basic mission and are given the opportunity to play an important role in helping the school to achieve that mission.

These "Correlates of Effective Schools" (Edmonds, 1979), marked the beginning of what would become known as the Effective Schools Movement and provided the foundation upon which much of the post-A Nation at Risk reform would be based.

2.1.2 A Nation at Risk and Effective Schools

When *A Nation at Risk* was published in 1983 it provided "a seminal event in that it called attention to the question about the quality of education in the country," (Casserly, 2005). Its forceful language warning that "America's place in the world will be either secured or forfeited," (Excellence Commission, p. 30) provided the first concrete step in the education reform that would follow; it articulated a problem and the national and international consequences for the United States. Its findings targeted the curriculum, expectations for students, time spent on learning, and the preparedness of teachers criticizing everything from a "cafeteria-style curriculum" (Excellence Commission, p. 17) to "poor management of classroom time" (p.19). Though some have called *A Nation at Risk* "more of a political treatise than a thoughtful statement for the reform of American schools," (Hlebowitsh, 1990, p. 88) and criticized its author's choice of rhetoric (Guthrie and Springer, 2004), it "accelerated a paradigm shift from measuring American education success by resources received to results achieved," (Guthrie and Springer, 2004, p. 26). How to achieve those results became a policy focus at the national

level, while researchers and educators focused at the local level on experimentation and implementation of school reform models based on effective schools research.

The "effective schools movement" focused on two questions: "Do effective schools exist?" and if so, "What do they look like?" Good and Brody (1985) reasoned that if some meaningful variation could be found in performance among schools, then it followed that student performance in schools could be improved and that such research would highlight individual schools where achievement was universally high. They summarized their reasoning, "Student progress clearly varies from school to school, but the real question is whether this variation in achievement among schools is affected by school processes or whether this variation can be explained completely in terms of student factors such as aptitude" (Good and Brophy, 1985, p. 7). Ultimately, a definition and description of an effective school began to evolve and contained three common elements: a student achievement focus, an emphasis on all students, and mastery of basic skills. Mace-Matluck (1986) proposed this composite definition,

> An effective school is one in which the conditions are such that student achievement data show that all students evidence an acceptable minimum mastery of those essential basic skills that are prerequisite to success at the next level of schooling. (p. 5)

Many "models of school reform" based on research about effective schools began to emerge with the "notion that to reform education in this country you were going to have to do it one school at a time," (Casserly, 2007). However, national-level leaders began to

explore how federal policy could be leveraged toward addressing the country's education issues in a more cohesive, accountable manner.

2.1.3 National Policy Changes

The first National Education Summit was held in Charlottesville, Virginia in 1989 inviting the country's 50 governors with the intention of establishing education goals for the nation. What resulted was a policy framework organized around six national education goals (later expanded to eight) which were to be met by the year 2000. These were

1. All children will start school ready to learn.
2. The high school graduation rate will increase to at least 90%.
3. All students will become competent in challenging subject matter.
4. Teachers will have the knowledge and skills that they need.
5. U.S. students will be first in the world in mathematics and science achievement.
6. Every adult American will be literate.
7. Schools will be safe, disciplined, and free of guns, drugs, and alcohol.
8. Schools will promote parental involvement and participation.

A National Education Goals Panel was created to assess and report on state and national progress towards achieving the goals. Professional organizations such as the National Council of Teachers of Mathematics (1989, 1991, and 2000) and the International Association of English Language Arts Teachers were encouraged to develop content and instructional standards and states were encouraged to use those voluntary standards.

In 1994, Goals 2000: President Clinton signed Educate America Act into law in order to:

> "improve learning and teaching by providing a national framework for education reform; to promote the research, consensus building, and systemic changes needed to ensure equitable educational opportunities and high level of educational achievement for all American students;... [and] to promote the development and adoption of a voluntary national system of skill standards and certification..." (sec 1)

The government published guide to implementing Goals 2000 (1994) promoted school change created by teachers and administrators working with students, parents, and community members. Complementing Goals 2000 was the Improving America's Schools Act (1994), a reauthorization of the Elementary and Secondary Education Act (ESEA) which continued Title I funding for schools with a large percentage of low-income students. However, rather than endorsing compensatory educational programs to targeted students utilizing "pullout" programs, schools were permitted to develop school-wide reform programs. During the period from 1994-1997 the federal General Accounting Office reported that 39% of Goals 2000 money went to sub-grants to fund local education reform activities (General Accounting Office, 1998). Structure for these reform initiatives was provided through the Comprehensive School Reform Program (1997) which outlined nine specific school-reform components required in order to qualify for federal funds. These criteria are shown in Table 2.1.

Table 2.1: U.S. Department of Education Criteria for a CSR Program

Criterion	Description
1	Employs proven methods for student learning, teaching and school management that are based on scientific research and practices that have been replicated successfully in schools
2	Integrates instruction, assessment, classroom management, professional development, parental involvement, and school management
3	Provides high-quality and continuous teacher and staff professional development and training
4	Includes measurable goals for student academic achievement and establishes benchmarks for meeting those goals
5	Is supported by teachers, principles, administrators, and other staff throughout the school
6	Provides for the meaningful involvement of parents and the local community in planning, implementing, and evaluating school improvement activities
7	Uses high-quality external technical support and assistance from an entity that has experience and expertise in school wide reform and improvement
8	Includes a plan for the annual evaluation of the implementation of the school reform and the student results achieved
9	Identifies the available federal, state, local, and private financial and other resources that schools can use to coordinate services that support and sustain the school reform effort

The federal movement to increase the level of school accountability was expanded in 2001 with the bi-partisan reauthorization of the ESEA that is called the No Child Left Behind Act.

The current condition of education is "symbolized by measurement of outcomes and the construction of today's accountability systems. The No Child Left Behind [legislation] is the driving transitional force behind this," (Guthrie and Springer, 2004, p. 31). Proposed by President Bush shortly after his inauguration, The No Child Left Behind Act of 2001 (NCLB), signed into law in January of 2002, reauthorized the Elementary and Secondary Education Act (1965). The four stated principles or "pillars" of NCLB are stronger accountability for results, more choices for parents, greater local control and flexibility, and the use of proven education methods.

Accountability measures required the establishing of state standards in reading and math, annual testing for all students in grades 3-8, and the setting of annual statewide progress objectives to ensure that all groups of students reach proficiency by the year 2014. Schools that fail to make adequate yearly progress (AYP) toward statewide proficiency goals are subject to increasingly intensive corrective actions. Increased parent choice is provided by allowing students who attend Title I schools identified for improvement the opportunity to attend a school that has met AYP. Parents may also elect for supplemental services for their children at the school's expense. Local control and flexibility is provided to states, districts, and schools in determining how NCLB and AYP requirements will be met, though the degree of that flexibility depends largely on whether or not schools and districts are meeting AYP. For example, transferability of federal funds between 4 different federal programs is permitted provided ATP requirements are being met. Schools and districts require the use of proven educational methods as they comply with improvement criteria toward making AYP. Improvement efforts must utilize

"scientifically-based research" as the foundation for education programs and classroom instruction.

The Title I and Title V sections of NCLB made changes to the Comprehensive School Reform Demonstration Program (U.S. Department of Education, 2004) adding two new components: support for school staff and the use of scientifically-based research.

The accountability measures of No Child Left Behind have changed the nature of local and state control over education. According to Guthrie and Springer (2004),

> For most of the [last] three and a half centuries...U.S. public education has been dominated by a doctrine of state plenary authority mixed with the practical reality of local school district management discretion. ...The new reality is that the accountability measures mandated by NCLB are a new driving force in American education. In essence, the federal government is now the principal propelling policy agent behind American education. Herein may reside, for better or worse, the ultimate legacy of A Nation at Risk. (p. 33)

Since it passage, the nonprofit Center on Education Policy (CEP) has studied the effect of the No Child Left Behind Act through surveys and interviews of state departments of education officials and case studies of individual schools and school districts to determine the impact of the policy. Jennings and Rentner (2006) of the CEP believe test-driven accountability has become the norm for public schools. Porter (2006) called this a philosophical shift from opportunity to learn to universal competence.

Rothstein, Jacobsen and Wilder (2006) offered the opinion that "proficiency for all" was an oxymoron. They wrote,

> No goal can be both challenging to and achievable by all students across the achievement distribution. Standards can be either minimal and present little challenge to typical students or challenging and unattainable by below-average students....it would be impossible to craft standards that simultaneously challenge students at the top, middle, and bottom. (p. 32)

They do agree however, that closing achievement gaps, meaning eliminating the variation in achievement between socioeconomic groups is "daunting, but worth striving for" (Rothstein et al. 2006, p. 32). Lezotte (interview in Sparks, 1993) voiced a different viewpoint related to success for all students. He said it would be foolish to think we need to know everything we need to know to produce 100% success before beginning to make positive changes. In his opinion, resources exist to help 95% of students succeed already by revising instructional systems. He concluded, "While our mission is successful learning for all, mission statements are not supposed to be descriptions of current reality but of a preferred future state." (p. 18)

Jennings and Rentner (2006) named four of the big effects of NCLB on public schools four years after enactment of the legislation. First, they acknowledged reported increases in student achievement as measured on state tests of reading and math though they also cautioned that there is no standard for comparison across states. Second, they noted that curriculum and instruction were more aligned with standards and assessments, and that performance data were used more often for instructional decisions and

improvement, with a concurrent improvement in the quality and quantity of professional development for teachers. Third, they found that low performing schools were more actively engaged in curriculum, staffing and leadership improvements at the school level rather than facing externally imposed changes. Their last finding was that the federal government had a stronger role in education than ever in the past and that the role of state government in education had also changed to an increased focus on accountability enforcement, monitoring, and assistance. In individual school districts more duties had been created or assumed than ever before related to NCLB. States and individual school districts both reported in the CEP study they did not have enough funds to administer the requirements of the No Child Left Behind Act.

Individual school success in implementing the CSR components and effect on student achievement were reported by the U.S. Department of Education in 2004. Data were collected from a sample of 1,032 schools in 37 states between 1999 and 2001. Researchers used surveys of principals and teachers, student assessment data, and focused interviews in a targeted sample of 18 schools. Findings indicated that the incentive of additional federal money encouraged more schools to adopt comprehensive school improvement but that after two years, effective implementation of school reform was mixed. The CSR program had a focus on externally-developed ("scientifically based") reform models but researchers found that most schools had adapted the reform model they selected to meet their local setting. Professional development of teachers was more likely to be influenced by curriculum content standards and student assessment data but not focused on broad, comprehensive reform topics or issues. There was no

correlation between the small gains in student achievement over the two years of the study and implementation of CSR initiatives. Researchers cited the need for more longitudinal study of the data since implementation of large-scale reform is a process over time. Finally, researchers found few schools that had developed strategies to gain broad, long-term parent and community involvement (U.S. Department of Education, 2004).

The historical events of school reform represent an evolution from a school-to-school to a system-wide approach. School restructuring within the larger context of systemic school district reform has been stressed by many education experts: Newmann & Clune (1992); Darling-Hammond (1996); Fuhrman (1993); Fullan (2001a); Murphy & Hallinger (1993); Newmann & Wehlage (1995); and Sizer (1992) and within the effective schools research done by Brookover, Edmonds, Frederickson, and Lezotte beginning in the late 1970's. Increasingly, education researchers are leveraging the perspectives of experts in the business field to strengthen a call for large-scale reform.

In 2007 the New Commission on the Skills of the American Workforce issued a report entitled Tough Choices or Tough Times. The twenty six members of the commission included two each former U.S. Secretaries of Labor and Education, as well as numerous business, labor, and university leaders who worked over a two-year period The report returned the focus to American economic capacity that was found in *A Nation at Risk.* The commission worked over a period of two years to conduct four sub-studies that investigated economics and labor markets, industry, education systems, and workforce development. These included field research in fourteen industrialized and

emerging countries. It concluded that the United States is falling farther and farther behind in its ability to be competitive in a global economy, Contributing factors include a decline in the number of students earning a high school diploma, a decline in the quality of education received by American students, and an increase in the numbers of highly skilled workers in other countries who will work for less than American counterparts. The report concludes that

> The core problem is that our education and training systems were built for another era, an era in which most workers needed only a rudimentary education. It is not possible to get where we have to go by patching that system. There is not enough money available at any level of our intergovernmental system to fix this problem by spending more on the system we have. We can get where we must go only by changing the system itself... The problem is not with our educators. It is with the system in which they work. (NCEE, p. 8)

The next section of this chapter reviews this ideal of a systems approach toward education and how it is relevant to the Quality Schools Model.

2.2 Systems Theory and Organizational Structures

Systems Theory thinking provides a helpful way to look at school reform because no single event, problem, or action occurs in isolation, but instead is viewed as a component of larger structures. According to Senge, McCabe, Lucas, Smith, Dutton, and Kleiner (2000), "a system is any perceived whole whose elements 'hang together' because they continually affect each other over time." (p. 78). This section reviews systems concepts that are relevant to educational reform and the Quality Schools Model.

2.2.1 Implementation Structures

In the effective schools research conducted by Edmonds et al., the individual school was emphasized as the unit of change. Later, researchers realized that to sustain school improvement required a systems view of the school district as the unit of change. Lezotte (2003) summarized this shift in thinking,

> Organizational management theories provided significant additions to effective schools research and policy. The concepts of decentralization and empowerment, the importance of organizational culture, and the principles of total quality management and continuous improvement have added important dimensions to our understanding of effective schools. (p.9)

To adequately study the implementation of a complex initiative like the Quality Schools Model where individuals within different systems are constantly interacting, it is helpful to use Hjern and Porter's (1981) description of implementation structures and Porter's (1990) description of structural poses. Porter (1990) described five different types of structures that are related to the Quality Schools Model. They are: government, which includes federal, state, and local governance and policy functions; organization, which includes not only a school district but organizations and businesses with which it interacts; professional, which includes teachers, administrators, and specialists; market structures which involves the concepts of buyers, sellers, brokers, consumers, and the exchange of goods and services; and implementation structures which are like a hybrid of the first four types of structures rather than an amalgamation of them. Porter (1990) summarized their features:

> Implementation structures comprise individuals who set goals, mobilize resources, coordinate their actions, possess specialized expertise, and produce goods and services and, Dominant values that guide relationships among individuals within implementation structures are nonhierarchical, consensual, voluntary, based on shared values, professional competence, and nonterritoriality. (p. 18)

These features of implementation structures are important to consider when conducting an analysis to determine successful implementation or to describe degree of implementation of the Quality Schools Model. Porter (2006) said, "For a prescriptive theory to be effective, it must be descriptive of the reality it intends to modify" (p. 22). For implementation structures to be effective, the other overlapping systems or structures must also operate effectively, e.g., government, the school district and business organizations, professional and market structures. What seems to be the most important tie that binds individuals to the implementation structure is a set of shared values called shared vision in the Quality Schools Model.

2.2.2 Structural Pose

Within the implementation structure, individuals assume different roles and move from being a citizen to a professional to a consumer depending on the task and numerous other conditions. Gearing (1968), in his anthropological work studying political activity within Cherokee Indian villages coined the term "structural pose" to describe the way individuals participated in structures and adopted a code of behavior and expectations specific to each structure. He noted that individuals moved effortlessly between structures

and the norms required to function in each one. According to Gearing, the concept of structural pose was useful for describing the behavior of individuals within structures and helps to explain why an action might be considered good in one setting but not in another. Porter used the structural pose model to describe how individuals can concurrently assume more than one role in the various structures that interact within implementation. An example of the structural pose concept within the Quality Schools Model would be an Alaska Native paraprofessional in a village school who is also a parent and community member. The paraprofessional interacts with teachers as a professional, acts as a "seller" in the knowledge market when she provides culturally specific information to the teachers in her building, further acts as a consumer of education services as a parent, and participates in the organization of the school district as an employee who is supervised by the teacher and building administrator. Within the community, she may have a role or responsibility in the tribal council, and is impacted by the federal and state NCLB accountability requirements as both a professional and as a parent.

2.2.3 Organizational Structure Theory Applied to Education

The Quality Schools Model is a guide for both strategy and structure for education reform. Chandler (1962) defined strategy as the long-term goals and objectives of an organization and the actions adopted and resources allocated as necessary for carrying out the goals. The strategy of the Quality Schools Model is a locally determined shared vision that sets the course for subsequent action. Furthermore, Chandler (1962) defined structure as the design of the organization, with two notable features. Structure

includes lines of authority and communication, and data and information that pass through the lines of authority and communication. According to Chandler (1962), "such lines and such data are essential to assure the effective coordination, appraisal, and planning so necessary in carrying out the basic goals and policies and in knitting together the total resources of the enterprise." (p. 14) The Quality Schools Model however, is heavily reliant on the development of a less bureaucratic organizational structure where leadership is shared and where there is strong support for fluid sharing of the knowledge assets of the organization. This is more consistent with the implementation structure described by Porter.

Porter (2006) likened the No Child Left Behind accountability measures to the business structural requirements that gave rise to the multiple division design described by Chandler (1962). Chandler described the problems of industrial organizations in managing and coordinating the activities of increasingly complex businesses that were becoming geographically dispersed. This led large companies to adopt multidivisional structures with decentralized decision making and control. With NCLB, federal policy and regulations stipulate the necessary results, but decision making for achieving the results has been decentralized through the states to individual school districts, and further to individual schools. Accountability for results resides with individual schools and the school district while sanctions are the tool for compliance held by state and federal government.

The debate over the best organizational configuration for schools – whether they should be centralized or decentralized - resides alongside debates over curriculum,

teaching strategies, and standardized testing. In the debate over configuration, proponents of centralization such as Tucker and Codding (1998) favor stricter curricular and testing standards at the national level. Mohrman and Wohlstetter (1994) who are proponents of decentralization favor school-based management. Chubb and Moe (1990) are advocates of even more decentralization in the form of government-funded school vouchers and charter schools. Ouchi, Cooper, Segal, DeRoche, Brown and Galvin (2003) cited the large body of literature that says higher student achievement is linked to decentralized organizations. In contrast, other researchers have felt that because schools are loosely coupled organizations, structure did not have a relationship to performance. As Swanson and Stevenson (in Ouchi et al., 2003) explained,

> According to this perspective, the technical work of schooling (teaching and learning) is only loosely tied to the administrative structure of the school. The work of instruction is performed within individual classrooms that are substantially isolated from the teaching practices in other classrooms, even within the same school. (p. 7)

Many school systems are a hybrid type of decentralized organization (called by Williamson (1991) "M-Form organizations") that centralize some activities to achieve economy of scale, but decentralize decisions to the sub-units and provide policy guidance and broad accountability from the central office. In an M-Form school system most of the major functions of the central office are delegated to individual schools which are fairly autonomous. For example, schools make decisions about which teachers and support staff to hire, the proportion of teachers to classroom aides, how to use other full or part-time

staff, which supplies to purchase, how much to spend on computers and who goes to which training. Williamson (1991) thought that M-Form organizations outperformed other types of organizations. When subunits of an organization are geographically dispersed, as is the case in rural Alaska school districts, the M-Form is more likely to appear. Williamson (in Ouchi et al., 2003) said decentralization of decision-making is especially important when each operating unit faces unique conditions. He also stated that performance is easier to monitor in M-Form organizations because the subunit has control of most of the important decisions. The central organization, or district office, can fairly measure subunits on outputs such as attendance rates and student achievement on standards-based assessments. The success of education reform efforts in these geographically dispersed subunits (schools) is dependent on a well-functioning knowledge market and knowledge management strategies.

Ouchi et al. (2003) researched Williamson's theory that M-Form school organizations outperform more centralized types. For their study, they selected nine school systems including the three largest in the U.S. (New York City, Los Angeles, and Chicago) as well as Catholic school systems. They concluded that M-Form systems were the most effective, both financially and educationally using a number of quantitative measures. In their study, vertical central control was still present in the M-design districts in the form of reported performance measures from schools.

2.2.4 Universal Competence and the Core Technology of Education

With the passage of the No Child Left Behind Act, federal policy makers finally abandoned the findings of the Coleman report in favor of the philosophy that all students

can experience high achievement and that schools can make a difference in students' achievement regardless of family background. Porter (2006) called this change a philosophical shift from "opportunity to learn" to "universal competence." In an opportunity to learn environment, responsibility for ensuring learning ended when all of the conditions for learning had been provided: facility, instructor, curriculum, etc. The students' job was to take advantage of what was provided, and if they couldn't or wouldn't, it was their fault that learning didn't occur, not the fault of the system. While NCLB requirements have brought fresh legal challenges related to opportunity to learn in many states including the recent Moore vs. State of Alaska (Darling-Hammond, 2006), the policy focus has broadened to include the expectation of higher standards of achievement attained by all students.

"Universal competence" is the philosophy embodied in the effective schools movement and now adopted in the accountability measures of No Child Left Behind. It is the philosophy that all students must achieve certain levels of learning, and that the system has some responsibility for ensuring they do. The question is whether the core technology exists within education systems to deliver on the goal of universal competence.

The technology of education rests on abstract systems of belief about relationships among teachers, curriculum, and students. The potential problems begin to arise when these beliefs are operationalized. Education is an example of intensive technology, where both parties (educator and student) are reciprocally interdependent in the production of services (results). It is called a custom technology because each time all

of the right ingredients (capacities) have to be available, accessed, and used in amounts and ways specific to the individual situation. (Thompson, 1967, pp. 17-18). For example, a classroom teacher calls in a special education teacher to administer a diagnostic test and together they determine the best curriculum and teaching strategies for a particular student. The education of this student may depend on the teacher consulting with other individuals and accessing other resources as well. Each specific case (the education of a single student) defines which component activities are necessary and in what combination from the whole group of possibilities within the organization.

The core technology of teaching and learning demonstrates the concept of reciprocal interdependence, where the actions of both the teacher and student must be adjusted to the actions of the other (Thompson, 1967). The actions of the teacher and student are synched through coordination by mutual adjustment, which require a high degree of communication and decision making. It is this reason (in education) that tutoring and small classes are more effective than large lectures and distance education. It is the most costly way for organizations to achieve stated results, but the norm for education.

The core technology of education – the teaching and learning interchange – is coproduced. If learning is the outcome of the delivery of teaching services, the student must be involved ("engaged") for the exchange to occur successfully. The teacher supplies instruction tailored to the student, guidance, and encouragement, but the teacher and student must both work together to increase the student's knowledge. Whitaker (1980) distinguished between individual and group participation in coproduction and

defined three types of coproduction involving individuals. Broad scale citizen participation is found at the policy level, where groups of individuals may band together to influence the content of policy during its development. A different kind of group involvement comes during policy implementation, when citizens may participate passively by simply paying their taxes (to support a federal program for the general good). Another example of coproduction of policy on a large scale is not so passive – the implementation of No Child Left Behind rules and requirements. It might be argued that the coproduction of NCLB outcomes is happening through numerous mutual adjustment activities.

Whitaker's (1980) three types of coproduction can all be seen in education, but it is the third type that occurs within teaching and learning:

1. *Citizen requests for assistance* – This type of coproduction takes place only when individuals or groups ask for services. Examples in education might include application for free and reduced lunch, or parents request that their child be tested for the gifted education program. This type of coproduction is also usually marked by a high degree of rules used to determine the "fit" between the request and some predetermined conditions. Citizen requests for assistance may have an influence on the distribution of services and resources to a community.
2. *Citizen provision of assistance* – This type of coproduction relies on citizen cooperation with service providers and actually helping in the design and/or delivery of services to achieve a common goal. In traditional

Alaska Native villages, an example was successful hunters or fishermen who shared their bounty with the elderly and community members unable to hunt and fish. Within the Quality Schools Model, broad community participation in development of the Shared Vision, volunteerism as a mentor for a student's Individual Learning Plan goals, and local community elders in the classroom to teach cultural skills would typify this type of coproduction. Whitaker notes the power of a constituency in this type of coproduction by saying, "One way for citizens to indicate lack of agreement that a policy [or school reform] is good, is to fail to cooperate. If enough citizens withhold their assistance, then a project based on cooperation cannot succeed" (p. 244).

3. *Citizen/Agent Mutual Adjustment* – This type of coproduction is important when the goal is to modify the recipient's behavior (or knowledge). It involves joint consideration of a problem or situation and development of a common understanding of what to do about it. Along the way, expectations and actions are modified, involving a high degree of communication. Feedback is internal to the process. In this case Whitaker said both the student and teacher "share responsibility for deciding what action to take. Moreover, each accords legitimacy to the responsibility of the other" (p. 244).

Whitaker pointed out that coproduction via mutual adjustment does not necessarily mean the interaction of equals in terms of knowledge or other resources. In

the teacher and student example, a teacher clearly has greater skill and knowledge and even authority to be proscriptive. But authority does not work to gain mutual adjustment because the student has free will to participate (motivation). Instead in mutual adjustment, authority is shared – a teacher does not relinquish professional authority but agrees to share it with the student who has free will and choice over whether to participate in the transaction. Research showing the positive relationship between teacher expectations of students and student achievement, and other research showing a correlation between students perception of teachers as capable and student willingness to commit to rigorous learning are examples of the importance of coproduction by mutual adjustment.

Alford (2002) distinguished between citizens, volunteers, and clients similar to Whitaker and then elaborated on the motivators that would elicit coproduction. They are intrinsic satisfaction, desire for group affiliation and belonging (solidarity) and collective values "for the good of the group." Alford noted that in addition to motivation, clients needed to have the ability to coproduce; organizations aid in this process through simplification of complex work and by providing training, advice, or help to clients. Another motivator for coproduction was sanctions, albeit not a satisfactory one since it is tied to avoidance of punishment. Alford called sanctions deficient as motivators of positive behavior because they send signals to the client that s/he cannot be trusted to coproduce without some sort of enforcement. He found that, "sanctions are destructive of clients' voluntary impulse to contribute…The end result is that clients experience the organization's enforcement as arbitrary or as bound up in complex rules." (p. 43)

Within education, the accountability requirements of No Child Left Behind act as sanctions to create a group of contingently compliant clients. Contingently compliant clients coproduce, either willingly or grudgingly because of the sanctions that lurk in the background. Because the sanctions occupy the background space, clients have the opportunity to participate willingly. Sanctions are only invoked or applied as necessary. In this case, sanctions have the function of reassuring clients who willingly contribute time and effort that the process is inherently fair. In other words, they are not "suckers" who are coproducing more than the rest (Alford, 2002).

2.3 Change Theory and Research

Senge et al. (2000) noted that even though history has shown many of the broad statements contained in *A Nation at Risk* have been proven false or discounted, the perception of schools in crisis remains. And while no one really knows what the world of work or global culture will look like in eighteen years when a new group of kindergarten students are of likely age to graduate from college, the safest prediction is change (Senge et al., 2000).

According to Senge et al. (2000) there are three reasons why change and innovation are more difficult to sustain in education than in business. First, is that schools are more purely industrial-age institutions; second, schools are more tightly embedded in larger social systems; and last, we are all (educators, parents, and community members) a product of the industrial-age school, with accompanying mental models of the experience. In new experiences, most people tend to hear and remember only the

information that reinforces their existing mental models. Mental models can limit people's ability to change, or in other words, limit their absorptive capacity.

2.3.1 Absorptive Capacity

Cohen and Levinthal (1990) defined organizational absorptive capacity as, "the ability of an [organization] to recognize the value of new, external information, assimilate it, and apply it." (p. 128) Absorptive capacity is important since most organizational innovation results from borrowing rather than invention (March and Simon, 1993). The Quality Schools Model is a good example of a borrowed innovation. The premise behind absorptive capacity is that an organization or individual needs prior related knowledge to assimilate and use new knowledge. New knowledge is linked to pre-existing concepts before it can be extended, expanded, and used. "The ability to assimilate information is a function of the richness of the pre-existing knowledge structure: learning is cumulative and learning is greatest when it is related to what is already known" (Cohen and Levinthal, p. 131). Teachers recognize this when they conduct a task analysis to determine the extent of understanding of prior knowledge as part of designing and individualizing instruction for students.

Cohen and Levinthal's (1990) definition of absorptive capacity also included the ability to use knowledge as well as acquiring or assimilating it. An organization's absorptive capacity depends on the absorptive capacity of its individual members. From an organizational standpoint, it pays to develop the absorptive capacities of individual members of the organization. An early and ongoing investment in developing employee's

absorptive capacities will subsequently position the organization to assimilate and adapt new knowledge more quickly and effectively.

It follows from Cohen and Levinthal's (1990) theory of absorptive capacity that if a school district and its stakeholders have some experience already with some form of education reform, implementation of the Quality Schools Model should be easier to achieve because of a higher absorptive capacity for the new knowledge. McKinney (2003) studied the readiness of school systems to adopt change (their absorptive capacity), such as the Quality Schools Model, with a particular focus on Alaska's rural schools. Her study resulted in the development of a profile to assess readiness for organizational change. It was intended to provide a measure of the inertia to change present in a school setting as a way of anticipating the success of introduction of the school reform, such as the QSM. McKinney found that staff members in rural communities and villages had a higher receptivity to change yet change in rural areas was hampered by the frequent turnover of staff and administration. Frequent staff turnover would seem to be a major obstacle to sustaining organizational absorptive capacity for implementation of education reform unless new staff members enter the organization with some prior knowledge of reform that they can use to make sense of and participate in the initiative.

2.3.2 The Difficulty of Educational Change

Change represents a push-pull process between forces that promote the change and those that inhibit or stop it from growing. Senge, Kleiner, Roberts, Ross, Roth, and Smith (1999) described profound change as a combination of shifts in individual values

and beliefs (inner change) and shifts in organizational processes, practices, and systems (outer change). "In profound change there is learning. The organization doesn't just do something new; it builds its capacity for doing things in a new way...it builds capacity for ongoing change." (p. 15)

Senge et al., (1999) identified ten challenges to change that represent the system "pushing back" against or opposing change. Each of the ten challenges represents normal opposition to change though not all are necessarily encountered in a given change setting. The challenges are grouped into challenges of initiating (not enough time; no help; perceived irrelevance; and disconnect between leadership talk and action), challenges of sustaining momentum (fear and anxiety; outdated measures of success; and marginalization of organizational change agents), and challenges of system wide redesign and rethinking (conflict over power and autonomy; inadvertent reinvention; and outdated shared vision). The challenges to change are dynamic because they result from balancing all of the change forces with the processes that push back (push-pull). They are nonlinear in that each situation is unique and a challenge from one setting may be presented and resolved totally differently in another setting. The challenges are also interdependent. The push-pull nature of the challenges means that when one challenge is addressed, another may emerge and require attention (shifting dominance). In a positive way, building capacity to handle one challenge can spill over to capacity to handle other challenges. And, innovative solutions to challenges that work on a small level may help solve a larger challenge in the organization. (Senge et al.1999)

In discussing why educational change initiatives fail, Fullan (2001a) said:

> The problem of meaning is central to making sense of educational change. In order to achieve greater meaning, we must come to understand both the small and the big picture. The small picture concerns the subjective meaning or lack of meaning for individuals at all levels of the educational system. Neglect of the phenomenonology of change – that is how people actually experience change as distinct from how it might have been intended – is at the heart of the spectacular lack of success of most social reforms. (p. 8)

Fullan's comment expresses the essence of Jester's (2002) recommendation for further study related to the Quality Schools Model.

Hargreaves (1997) summarized the reasons for failure of education reform initiatives as resulting from multiple or contradictory initiatives undertaken simultaneously, "top-down" reform that has been imposed or was designed by just a small group of participants, reform that is out of context with the day to day operation of schools and classrooms, and lack of support for implementation at the classroom and individual teacher level. Cuban (1990a) wrote that the failure of reform efforts was often due to a bad fit between the reform initiative and the problems it intended to address.

First, he said applying a solution should end a problem. If the problem persists or recurs, the solution (reform) must not have worked to solve the intended problem. Second, there may have been a mismatch between the problem and solution – either the problems identified as being important were not the real problems that needed solving, or the solution applied to them was really intended to address different problems. Or, the problems themselves could actually be more deeply rooted, where solutions must include

hard choices between conflicting values. Cuban said problems of the third type are seldom resolved but instead are "managed" through compromise.

2.3.3 A Problem of Transfer

Even when individuals in an organization have the absorptive capacity to recognize and assimilate new knowledge and innovations, they might encounter difficulty in "selling" the idea to others in the organization, in knowledge market parlance. Szulanski (2003) explained, "Complex transfer problems are likely to require additional deliberation, recourse to non-standard skills, allocation of supplemental resources and escalation of transfer-related decisions to higher hierarchical levels for resolution" (p.14). He researched factors that could impede knowledge transfer using a survey to gather data from 271 participants related to the transfer of 38 identified best practices in eight business organizations. He triangulated the survey data with case studies in three of the organizations that included interview questions and data collection standardized across the sites. He concluded that there were nine correlates between knowledge and stickiness of transfer that occurred during four phases of knowledge transfer. The correlates defined by Szulanski were:

1. Causal ambiguity. Causal ambiguity refers to an incomplete understanding of the knowledge being transferred and which knowledge is valuable and critical to the transfer. "Successful replication of results, in a novel setting, may be compromised by idiosyncratic features of the new setting in which the knowledge is used." (p. 25) and "Routinized use of causally

ambiguous knowledge is often accompanied by gaps between formal [expected] and actual patterns of knowledge use." (p. 26)

2. Absence of the proof of the usefulness of the knowledge being transferred.
3. Lack of motivation of the source of the knowledge, or conversely lack of motivation of the recipient.
4. Lack of credibility of the source of the knowledge.
5. Lack of absorptive capacity of the knowledge recipient.
6. Lack of retentive capacity of the recipient of the knowledge. This could be due to employee turnover and/or inability to institutionalize new knowledge.
7. A "barren organizational context" that positively correlates to knowledge transfer stickiness. The organizational context is influenced by its formal structure and systems, sources of coordination and expertise as well as behavioral norms.
8. An arduous relationship between the source and recipient of the knowledge creates transfer stickiness.

Szulanski (2003) also identified four stages of the knowledge transfer process that is a part of the change process. They are: transfers were initiation, implementation, ramp-up, and integration. During implementation of change, transfer-specific ties are established between the source and recipient of the new knowledge, with information and resources flowing to the recipient. During the ramp-up stage, the recipient begins to use the newly transferred knowledge and the main concern is identifying and resolving

unexpected problems that if not addressed would impede the optimal use of the new knowledge. "The eventfulness of the ramp-up phase depends on the number and seriousness of unexpected problems and the effort required to solve them." (Szulanski, p. 37) The later problems occur during ramp-up, the harder they are to solve. And, difficulty during ramp-up corresponds to the degree of causal ambiguity of the practice or knowledge being transferred. Integration is the last phase of the change process where practice and processes becomes routine in the organization. Integration stickiness can occur when activities disrupt organizational status quo, like staff turnover, organizational dysfunction, or the appearance of a new, better alternative solution to the problem. When stickiness is encountered during integration, the newly transferred practice may be abandoned and the organization attempts to revert to the former status quo.

2.4 Education of Alaska Native Children and Alaska Educational Reform

The Quality Schools Model embodies many of the seven principles of the Standards for Effective Pedagogy (Tharp, 2006) that were advanced as effective education practices for underachieving, placed-at-risk groups across cultures, e.g., Alaska Native students. Therefore, this dissertation's study of the QSM and its implementation in three rural Alaska school districts comprised primarily of Alaska Native students deserves a review of the history of educating Alaska's Native children, a review of educational reform efforts that have affected Alaska's rural school districts, and an examination of the research on Native learning styles.

2.4.1 History of Educating Alaska's Native Children

A review of the history of educating Alaska's Native youth shows a long trail of both judicial and legislative actions and policy related to philosophy, purpose, and process of this education. In 1884, soon after Alaska became a territory of the United States, the education of Alaska's Native children began to shift from traditional Native approaches to teaching and learning to a Western style of schooling (Barnhardt, 2001). In the ensuing 125 years, the education of the state's Native students has followed a meandering path that includes statewide initiatives as well as innovative local reform efforts.

The first white settlers in Alaska were Russian fur traders who opened religious catechism schools for some of the Native laborers and their children. After transfer of Alaska to the United States in 1867, schools for rural Native Alaskans continued to be run by missionaries and by the newly established Bureau of Education, a unit within the Department of the Interior (Darnell, 1979). In the early 1900s new federal legislation allowed communities to incorporate and establish schools (Barnhardt C, 2001). Soon thereafter, the Nelson Act established schools for white and mixed race children in areas that were unincorporated with the Native students still being educated by the federal Bureau of Education. This dual system of education wasn't abolished until 1967.

The dual education system meant that in communities with both Native and non-Native populations, two government schools were maintained. Darnell and Hoem (1996) said of this arrangement, "[paradoxically], students in one segment of the population received an education based on the culture of the home; in the other, students received an

education alien to the culture of the home" (p. 66). Though education opportunity and choices have changed since then, in testimony before the U.S. Commission on Civil Rights, the president of the Association of Village Council Presidents stated,

> [the] children of Native Alaskan villages in effect go to school in a foreign country every day – "a foreign country because they don't speak the language and they don't learn about their culture and traditions. (Alaska State Advisory Committee, 2002).

This segregated school system persisted until the 1960's. At the end of World War II, Alaska's Territorial Commissioner of Education proposed a single school system for Natives and non-Natives, as well as a common curriculum. But, the federal government rejected the proposal, and control of Native schools remained with the Bureau of Indian Affairs. Until the 1970s, Alaska's rural Native students had to either travel to Sitka to attend Mount Edgecumbe or leave the state in order to attend high school. Ray (1958), quoted in Cotton (1984) said,

> The federal policy was to acculturate Alaska Natives by sending the most intellectually advanced youths to boarding schools for a vocational education, then returning them to their village. (p.31)

In the 1970s, as an alternative option for high school for rural students, the government started a Boarding Home Program and created regional schools, both of which still required students to leave their home village to attend school. Many of the grandparents and parents of the Native students that are a part of this study attended school under these circumstances and conditions. During this time the education

philosophy of the federal government toward Native students included an expectation that Natives would become assimilated into non-Native culture, and high school curriculum was strictly vocational (Cotton, 1984; Darnell and Hoem, 1996; Barnhardt, 2005).

Legislatively, the United States Congress defined the educational rights of all students in the Civil Rights Act of 1964 (Darnell and Hoem, 1996). In the passage of the Elementary and Secondary Education Act in 1965, Congress targeted federal funds toward disadvantaged students. But one of the most significant changes in education in Alaska occurred in 1976 as a result of the Tobeluk vs. Lind case (Darnell,1979) commonly known as the "Molly Hootch Case." The lawsuit was based on the argument that rural village high school students did not have equal opportunity to learn because there was no high school in their community (Cotton, 1984). The settlement of the case spelled out significant conditions for the opportunity to learn: a high school in every village that wanted one along with provisions for the size of the facility.

Equally significant, the settlement stated that the decision-making power over schools had to be turned over to local communities. This resulted in the dismantling of the previous federal and state system of oversight and administration for Alaska's rural schools and the creation of 20 (now 23) new regional school districts, called Regional Educational Attendance Areas (REAA's). Of significance is that the REAA had responsibility for school curriculum, staffing, and budgets. It is within this structure of local governance of schools that educational reform in Alaska has occurred.

2.4.2 Educational Reform in Alaska

Most state-level reform efforts in Alaska schools are based on "national models related to issues of accountability, standards, and standardized testing of students and teachers" (Barnhardt, 2001, p. 26). These efforts have followed a timeline and process similar to that in other states and have included many of the same state policy changes with resultant standards around which school districts were encouraged to organize curriculum and instruction. In the 1990s, Alaska responded early to federal education policy changes and the call for states to develop academic standards. Work to create voluntary content standards began in 1991 and was renamed the Alaska Quality Schools Initiative (QSI) in 1996. A QSI grant provided additional funds to districts if they adopted standards, provided additional services to students who aren't meeting the standards, and trained staff to monitor student learning toward meeting the standards. By 1998 Alaska had laws that mandated competency testing before students could receive a high school diploma (initially effective in 2002, later changed to 2004), development of student performance standards in reading, writing, and math, and a requirement that districts annually report specific information about student and district performance to the state and local communities. Reform efforts for the past five years have mirrored those in other states in compliance with NCLB legislation.

Several reform efforts in Alaska, including the Quality Schools Model, have attempted to bridge a gap between state- and federal-level accountability and local control. One initiative that was unique to Alaska was the Rural Systemic Initiative (RSI). In 1998 the RSI, supported by the National Science Foundation, the Alaska Federation of

Natives, the Annenberg Rural Challenge, and local Native Corporations, worked to establish cultural standards for Alaska students. These standards contained broad statements of what students should know and be able to do as a result of their experience in a school that was culturally aware. The student standards were later included in a more comprehensive set of standards called the Alaska Standards for Culturally Responsive Schools (1998). The Culturally Responsive Schools document was developed by a panel of Alaska Native educators as a way for schools to measure their effectiveness in meeting students' cultural needs and included the student standards as well as standards for educators, the curriculum, the school, and the community. The Alaska cultural standards are reflected in the design of the Quality Schools Model. Overall however, the implementation of these standards was not uniform among the state's rural Native schools. Another reform initiative, Alaska Onward to Excellence was developed at the Northwest Regional Education Laboratory (NWREL) in 1981. This approach was the result of research on effective schooling practices, including research on: school effects, teacher effects, instructional leadership, curriculum alignment, program coupling, and educational change. A third reform effort, the Quality Schools Model, attempted to incorporate some of the successful national reform efforts in a local manner that emphasizes contextual teaching and increased local governance. This model will be detailed in section three of this chapter. Despite these reform efforts barriers to learning have persisted in Alaska.

Beaulieu (2000) and the McDowell Group (2001) cited some of the factors that can be barriers to success that must be mitigated in order to accomplish education reform

in schools and districts serving Native students. In addition to the high drop-out rates cited in the 2003 Civil Rights report, they pointed to high professional staff turnover and limited knowledge of the school staff about effective processes for school improvement in predominantly Native populations. The needs of a higher proportion of English Language Learners must be considered in some cases as well as issues of substance abuse, violence, and crime that can in some way touch the lives of every member of a very small community. Further, they stated that community educational objectives for the retention of language and culture need to be honored in any education reform initiative within Native communities. Eisner (2004) cited overarching educational policies focused on homogenized results as inhibitors of educational reform and success for students with diverse intellectual strengths. He said, "Good schools increase individual differences, not reduce them. Effective schools increase variance or individual differences among students" (italics added). Benham Tye (2000) called the "deep structure of schools," meaning the embedded assumptions about how schools should operate, the cause of low performance by many students. She was referring to practices such as the age/grade structure that treat time as a constant – students have ten months to master specific curriculum concepts identified for a given grade level.

The Quality Schools Model is an attempt to incorporate some of the successful national reform components in a local manner that emphasizes contextual teaching and increased local governance. It also seeks to address through its Balanced Instruction Model the reason most often cited for the lower performance of Alaska's rural schools, a disconnect between the style of the Western school and the Native students.

2.4.3 Western Style Schooling and Alaska Native Students

Many have stated that the development of Alaska's rural schools was based on the erroneous assumption that a Western style of schooling would be successful with its Native students (Barnhardt, 2001; Darnell, 1979). Kawagley, (1995) notes that the implementation of a style of schooling on Alaska's Native people that is based on Western beliefs and practices has not always meshed well with the Native world view. Demmert et al., (2006) echoes this sentiment by stating that the Western approach toward education does not foster or include the Native style of passing on traditional knowledge. After reviewing the literature on this subject, one may surmise that the struggle between traditional Native methods of learning and the Western approach to schooling that was first identified in 1928 in the Merriman Report is still relevant today.

More than twenty years ago researchers showed that differences between the home culture and the mainstream behaviors promoted by school can contribute to academic and social failure of the student (Ogbu, 1987; Heath, 1983). The continued disparity between the academic performance of Alaska Native students and their white counterparts suggests that both the cultural differences between the home and the school and the disparity between the pedagogical style of the traditional Western school and learning styles of the Native students are reasons for the lower performance.

The issue of learning style is a topic of intense review and debate. Several (Bland, 1975; Stellern et al.,1986; Kleinfeld and Nelson, 1991 as cited in Pewewardy, 2002) argue that their research was inconclusive in showing that American Indian/Alaska Native students have a dominant learning style. Moreover, McIvor (1999) states that

there is no absolute or generic "Indian learning style." From this research one may thus surmise that learning style is not genetic, but rather as Vygotsky (1994) states, a result of the socialization process that occur within society. While it may be wrong to assert that the learning style of each group or tribe of native's is unique, there is however, research to support that learning best occurs when the cultural personality of a student is sync with the school's offered style of pedagogy (Greymorning, 2000) .

The research on the learning styles of Native children has found that four learning traits are common for this group (Pewewardy, 2002). These traits include a field-dependence or global processing learning style (Stairs, 1999, as cited in Pewewardy, 2002), a visual style (Lipiniski, 1989, 1990), a reflective style (Hall, 1991; McShane and Plas, 1994) and the positive effect on learning as a result of a classroom management style (Scollon and Scollon, 1981; Tharp, 1989). One should note that the four styles do not include an auditory approach. This is significant since the traditional Western approach toward learning stresses an auditory learning style. With the assumption that learning style is not random, one can fairly state that if the schooling process is to be effective, then the approach toward learning must include contextual material that makes a connection to his culture. Lipka's et al., (2005) research with teaching math to Alaska Native students that includes contextual models, e.g., a fish rack, has shown an increase in students' learning when compared to the results of the more traditional Western style of math instruction with this same group of students. Barta, J., Abeyta, A., Gould, E., Matt, G., Seaman, D., & Voggessor, G. (2001), note that the contextual approach to

learning, one that includes culturally relevant curricula, is a necessary bridge between home and school.

Sternberg (2006) reporting on studies conducted with students in both Alaska and Kenya, found that capitalizing on students cultural strengths improved their achievement. In his work, researchers assessed students' creative and analytic abilities using questions that related to practical knowledge that was culturally relevant on tests that mimicked the hallmark features of standardized tests (written, objective, and multiple-choice). Under those conditions, researchers found that students had a depth of adaptive knowledge and skills that was not apparent on standardized tests. He concluded, "Which students do well depends on what we test" (p.31). Contrasting performance-based demonstration of knowledge with standardized tests, Barnhardt and Kawagley (2005) said,

> In Western terms, competency is often assessed based on predetermined ideas of what a person should know, which is then measured indirectly through various forms of "objective" tests. ...In the traditional Native sense, competency has an unequivocal relationship to survival or extinction – if one fails as a caribou hunter, the entire family is in jeopardy. One either has or does not have requisite knowledge, and it is tested in a real-world context. (p.11)

A three year study (Kushman and Barnhardt, 1999) of rural school reform conducted by the Northwest Regional Educational Lab and University of Alaska Fairbanks researchers recommended the following strategies as means for increasing educational achievement for Alaska Native students, all of which are present in the components of the Quality Schools Model:

1. Provide role models and support for creating a positive self-image to which students can aspire.
2. Parent involvement needs to be treated as a partnership with more shared decision making.
3. Strengthen curriculum support for culturally responsive, place-based approaches that integrate local and global academic and practical learning.
4. Encourage the development of multiple paths for students to meet the state standards.
5. Sustainable reform needs to be a bottom up rather than a top down process and has to have a purpose beyond reform for reform's sake.

Despite the on-going level of research on the education of American Indians and Alaska Natives, in 2003, the U.S. Commission on Civil Rights issued a comprehensive report titled, A Quiet Crisis: Federal Funding and Unmet Needs in Indian Country, in which the following conclusion was drawn with regard to education of Native American students:

> As a group, Native American students are not afforded educational opportunities equal to other American students. They routinely face deteriorating school facilities, underpaid teachers, weak curricula, discriminatory treatment, and outdated learning tools. In addition, the cultural histories and practices of Native students are rarely incorporated in the learning environment. As a result, achievement gaps persist with Native American students scoring lower than any other racial/ethnic group in basic levels of reading, math, and history. Native

> American students are also less likely to graduate from high school and more likely to drop out in earlier grades. [U.S. Commission on Civil Rights 2003: xi]

The Commission report states that opportunity to learn and cultural factors related to learning, including learning styles associated with Native education must be addressed in any successful attempt at education reform. This would seem to be especially important in Alaska where nearly a quarter of the school age students are Native. In an education culture that emphasizes accountability through measurement of student achievement on standardized tests, students have the best chance of success when they understand the "cultural capital" that is being tested (English and Steffy, 2001). Eisner (2004, p. 32) summarized this by paraphrasing Plato, "what is honored in a culture will be promoted there. The kind of intelligence a culture prizes influences its development."

Returning to the Quality Schools Model, it is this inclusion of the contextual approach in the model's instructional model that may be one of the reasons for greater academic success by Alaska Native students working within this model (Coladarci et al., 2005). The next section explains the structure of the Quality Schools Model, and examines its related literature.

2.5 The Quality Schools Model

The three school districts that were the focus of this study relied heavily on the work of the Chugach School District which developed the Quality Schools Model. This section of the review provides a history of the QSM's development, and a review of the literature that examined the model's four components.

2.5.1 Overview of Four Studies

In this section four studies of the Quality Schools Model were found and are discussed in detail. The earliest study done by Jester (2002) was a case study of the development of the reform model in Chugach School District and raised some considerations about transferability of the model to other districts. Marzano (2005) looked at the design of the Quality Schools Model, with specific emphasis on the Balanced Instruction component. He concluded that the Quality Schools Model was well aligned with the eleven elements of Comprehensive School Reform outlined in No Child Left Behind. The third study, done by Coladarci et al., (2005) concluded that student achievement was higher in schools within districts implementing the Quality Schools Model and also higher in districts with a longer history of implementation of the model, though they did not make a causal correlation between the two. A fourth study conducted by Reagle (2007) hypothesized that for the Quality Schools Model to be sustainable in a rural school district, interactive connections and ownership by students, parents, and community members with the school district needed to occur. Reagle concluded that commitment to the district process for maintaining the Shared Vision and ongoing community involvement were necessary to sustain educational reform in rural Alaska.

2.5.2 QSM and Research on School Reform

Over the last twenty years, leaders in school restructuring have emerged across the country in districts with large capacity and a reputation for reform, e.g., Dade County, in school districts with many smaller administrative units e.g., New York City, and in schools or districts with a track record of low student achievement and little to lose in

terms of instructional quality. The Chugach School District in Alaska is an example of the last type of school district. In 1994 the district began a complete restructuring and in the process, developed the Quality Schools Model. Six years later in 2002, Chugach School District was awarded one of the first two Malcolm Baldrige Education Excellence Awards given in recognition of the performance effectiveness of the Quality Schools Model.

The Chugach School District restructuring effort was, and is, situated within the context of the standards movement in education and the needs of a primarily Alaska Native student population. The creation of the QSM was heavily influenced by the essential school research by Sizer (1992), effective schools research by Lezotte (1991), research and best practice in working with Native communities and learners, the quality principles of Deming, and the Malcolm Baldrige Criteria for Performance Excellence. Marzano's (2005) review of the Quality Schools Model determined that the model is well aligned with the eleven Comprehensive School Reform elements embedded in No Child Left Behind.

The research findings of Darling-Hammond et al., (2005) and Darling-Hammond's (2006) expert report in an Alaska School Equity lawsuit (Moore vs. State of Alaska Lawsuit, 2006) provides support for need for the QSM's four components as a part of an educational reform effort. In her expert report she described what quality, effective schools in Alaska should look like. She wrote that they should be:

> ...organized [so that] teachers who have adequate knowledge of the areas in which they teach [also] have the opportunity to develop strong curriculum and

> teaching strategies and lessons within [their] content area. This usually includes opportunities for teachers to collaborate with each other in planning curriculum and in organizing their instruction so that it is integrated and coherent from grade to grade and across subject areas. When teachers are enabled to stay with students for longer periods of time, the same teacher with students, for example, for a couple of years, and a team of teachers working with the same group of students, there is evidence that they are more effective. In addition, it is important that teachers are given the time necessary to plan with their teaching team around shared groups of students. Finally, schools that are more successful have clear benchmarks and standards they are aiming for and performances they are trying to develop. Teachers have developed a common, coherent approach to curriculum and teaching and use effective strategies....

The eleven CSR components have also been used as a guideline by many schools and districts to evaluate the scope and implementation of their reform initiatives. Marzano (2005) used the CSR criteria as a tool in his evaluation of the Quality Schools Model. He examined the Quality Schools Model using the U.S. Department of Education criteria for Comprehensive School Reform (CSR) programs. There are eleven criteria for CSR funded programs. Marzano's analysis of the QSM in light of each of the criteria is shown in Table 2.2

Table 2.2: Summary of 11 Comprehensive School Reform Criteria as Applied to the QSM (Marzano, 2005)

CSR Criterion	Findings
1	List of instructional practices are presented in Balanced Instructional Model (BIM). However, no empirical evidence is presented as to their effectiveness
2	Instruction, assessment, professional development, and school management are addressed explicitly or implicitly in QSM, BIM or both. Classroom management not directly addressed. Treatment of the elements in the QSM is not uniform
3	Issue of teacher and staff professional development and training addressed as criteria within the QSM. However, little explicit guidance provided in terms of how high quality is to be achieved
4	Measurable goals with benchmarks addressed in depth in the discussion of the Design and Application of Standards within the QSM
5	Support by teachers, principles, administrators, and other stakeholders addressed in Continuous Improvement component of the QSM
6	Support for teachers, principals, administrators, and other staff through shared leadership addressed in Leadership component of the QSM
7	Involvement of parents and local community is addressed in Stakeholders component of QSM but emphasis is on communication among these groups and the planning of the program; emphasis is not on evaluating the program
8	No explicit discussion of use of external institutions for technical support
9	Annual review appears implicit in QSM; however, little explicit guidance provided
10	No explicit attention to procurement of external sources of support for resources. However, such involvement can be inferred

Table 2.2: continued

11	Data presented regarding improvement of student achievement but no strong argument or presentation of data is provided

Marzano (2005) found that in general, the Quality Schools Model addresses the vast majority of the 11 CSR criteria at least to some extent. Areas for which the QSM might need the most improvement are criterion 1, 3, 9, and 11. Marzano suggested the body of empirical evidence upon which the Quality Schools Model is based should be gathered together to support the model. He also recommended more and better professional development specifically related to implementation issues. Last, he acknowledged the Coladarci et al's., (2005) study as a recent effort to address the need for ongoing review and use of data to demonstrate improvement in student achievement within the Quality Schools Model while he noted these components were previously not coordinated.

The Quality Schools Model is consistent with these findings that successful school leaders influence student achievement through two important pathways — the support and development of effective teachers and the implementation of effective organizational processes. Embedded in the Quality Schools Model are the same characteristics that Campbell and Fullan (2006) showed to be important in systemic efforts to increase student achievement. The study found that the successful schools included the following four strategic areas: leading with purpose and focusing direction; designing a coherent strategy, coordinating implementation, and reviewing outcomes; developing precision in knowledge, skills and daily practices for improving learning; and

sharing responsibility through the building of partnerships. Though the terminology is slightly different, all of the features described by Campbell and Fullan are also present in the Quality Schools Model.

Campbell and Fullan (2006) described the importance of examining available effective education reform initiatives and models this way,

> It is necessary...to identify cases in which specific [successful] strategies are in place so that we can examine what they look like in practice. Even with this increased precision, it is difficult to detail specifically "how to" make districts successful as there are no universal blueprints for success. The combination of strategies and the influence of local contexts, needs, and experiences will vary in the implementation and outcomes of similar practices in different contexts. To a certain extent districts must identify and review their own particular solutions drawing on the best knowledge from evidence of successful practices locally and beyond. (P. 19)

2.5.3 QSM's Four Components

The Quality Schools Model is a systemic educational reform with four interrelated structural components: Leadership, Shared Vision, Standards-Based Design, and Continuous Improvement. The adoption of the model then, is necessarily a systemic endeavor. However, it is apparent that many school districts are adopting the model without taking this prescribed approach of making improvements to all four areas. Some for instance, are adopting standards, creating assessments and improving associated pedagogy but are not giving a lot of attention to the other three areas. A partial or staged

implementation of the Quality Schools Model has not yet been studied for its effectiveness. The Quality Schools Model advocates that a district thoroughly review and then if necessary, improve the four components of the model. Theory and research related to each of the four elements is discussed in more detail below.

2.5.4 Leadership

Frances Hesselbein, President, and CEO of the Peter F. Drucker Foundation said that leaders today must recognize and demonstrate that their people are their greatest asset (Watson, 2002). In many of the instances and circumstances involved in systemic educational reform, the best leadership is not a singular effort. Leaders share or distribute responsibility in order to create ownership. Accordingly, shared leadership is a well-defined feature of the Quality Schools Model. Leithwood, Seashore-Louis, Anderson, and Wahlstrom (2004) outline three sets of core leadership practices, all of which are included in the Quality Schools Model:

1. Developing people — Enabling teachers and other staff to do their jobs effectively, offering intellectual support and stimulation to improve the work, and providing models of practice and support; and
2. Setting directions for the organization — developing shared goals, monitoring organizational performance, and promoting effective communication;
3. Redesigning the organization — creating a productive school culture, modifying organizational structures that undermine the work, and building collaborative processes.

James O'Toole of the Aspen Institute advised that it takes more than technical knowledge to be a leader (Sundre and Raisch, 2002). The best leaders make the best decisions by including the broadest set of perspectives, taking the longest-term view, including the most issues and looking at all of the consequences for all stakeholder groups. Drucker summarized school leadership this way, "...successful school leaders...are those who understand learning needs, develop plans to address those needs, establish priorities, implement the plans, monitor how the needs are being met and are accountable for their actions" (Sundre and Raisch, 2002).

Marzano, Waters, and McNulty (2005) conducted a meta-analysis of 69 research studies related to school leadership to determine the extent to which leadership played a role in school effectiveness, using as a measure of school effectiveness student achievement scores on large-scale tests. Marzano et al. found a correlation of .25 between the leadership behavior of principals and the average academic achievement of students in their building. They used these findings to develop a set of 21 principles related to school leadership. Their list of leadership principles was similar to one developed earlier by Cotton (2003) using a traditional narrative review, though the meta-analysis allowed Marzano et al. to form additional hypotheses and conclusions.

The range of correlations in the Marzano (2005) study was .33 for situational awareness, to .18 for relationships. Marzano et al., (2005) cautioned that ranking the 21 responsibilities in importance based on correlation would lead to erroneous conclusions, and instead called attention to how tightly clustered together most of the correlations were. They used a factor analysis of the survey that was designed to measure principal's

self-reported responses to questions that measured beliefs and practice related to the 21 principles.

In their study, Marzano et al., (2005) found some behaviors to be more important for different levels or degrees of change, which they termed first-order and second-order change. First-order change is the kind that occurs in small steps in the course of the daily operation of a school. It is neither large nor dramatic. Second-order change, by contrast, involves deep change and alteration of the system in fundamental ways; much like Alaska's Quality Schools Model is designed to do. Second-order change is not incremental and is dramatic. Marzano et al. (2005) concluded from their findings that all 21 of the principals' behaviors (principles) that they identified, are important to first-order change, at least to some degree. But, not al the principles have equal importance and they could, in fact, be ranked according to importance with Monitoring/Evaluation having the greatest importance and Change Agent having the least significance to first-order change.

By contrast, the researchers identified 7 principles that are important to second-order change, three of which were also ranked highly for first-order change (Monitoring/Evaluation, Ideals/Beliefs, and Knowledge of Curriculum.) These three responsibilities were deemed important to any type of change. Three other responsibilities important for second-order change were ranked low for first-order change (Change Agent, Optimizer, and Flexibility). Marzano et al., (2005) also concluded that some principal responsibilities are negatively affected by second-order change (Culture, Communication, Order, and Input.) This is an important conclusion – school leaders may

pay a price for implementation of second-order change. Specifically, team spirit and communication may decline or deteriorate, order and routine may be disrupted, and staff input and enthusiasm may suffer.

The Quality Schools Model is an example of second order change. Leadership responsibilities for second order change are (Marzano et al. 2005, pp. 70-72): Knowledge of curriculum, instruction and assessment: specifically how the change initiative will affect those functions and having the ability to provide guidance in these critical areas.

1. Optimizer: becoming the driving force behind the change or innovation and championing that belief to others.
2. Intellectual stimulation: becoming as knowledgeable about the theory and research behind an innovation and helping others grow and learn more about it.
3. Change agent: being willing to take a risk when the success of a proposed change is not guaranteed, and having a willingness to challenge the status quo.
4. Monitoring/evaluation: using data and evidence, both qualitative and quantitative to monitor the progress and impact of a change.
5. Flexibility: using situational awareness to determine a balance between being directive and nondirective relative to the change.
6. Ideals/beliefs: always operating in a consistent manner grounded in personal ideals and beliefs.

Peter Drucker, in discussing school leadership necessary for schools today and its challenges said,

> "Leaders in effective schools emphasize core values and devote time and effort into measuring how those core values are being translated into effective learning. Focusing on outcomes and how to achieve them rather than concentrating only on responsibilities and how to discharge them is among the most difficult challenges facing today's educators" (as cited in Sundre and Raisch, 2002).

2.5.5 Shared Vision

The Quality Schools Model is designed to be driven by the vision of a school district's stakeholders. This shared vision of where the district is headed is used for all goal setting. When leadership is shared, as in the Quality Schools Model, a strong shared vision must also exist along with an effective knowledge network. Reagle (2007) in her case study of a large rural Alaska school district implementing the Quality Schools Model found that developing a shared vision was critical to the success of the reform. Without a process for building a shared vision, there is no way for schools to articulate their sense of purpose (Senge et al. 2000). One of Peter Drucker's premier ideas was management by objectives, or focusing the organization to achieve a set of results by aligning the work of its people to a shared set of objectives (the shared vision). He said, "To achieve long-term success, an organization must have a purpose that elicits the dedication of its people" (as cited in Watson, 2002, p. 56). Drucker said that managing by objectives changes the responsibilities of the supervisor to eliciting agreement on and support for objectives and shared vision. Employees are then given the ability to define

the means for achieving the shared vision of the organization. Ted Sizer also supported the need for shared vision, "You're not going to get significant, long-term reform unless you have subtle but powerful support and collaboration among teachers, students, and the families of those students in a particular community. Without that, you can get short-term changes in instruction, but you won't get at the heart of reform." (as cited in O'Neil, 1995, p. 4)

The processes of building and spreading a shared vision are heavily dependent on informal knowledge networks more than on written communication and communication aided by technology. In describing the formation of shared vision, Senge et al. said,

> Catalyzing people's aspirations doesn't happen by accident; it requires time, care, and strategy. To support this creative process, people need to know they have real freedom to say what they want about purpose, meaning, and vision with no limits, encumbrances, or reprisals. (2000, p. 72)

Senge et al., (2000) said that the shared vision of a school district brings together all the disparate aspirations of individuals for a common purpose. The development of a shared vision is considered the important first step in implementation of the Quality Schools Model. Reagle (2007) examined whether the development of a shared vision in a rural Alaska school district included the Alaska Native parent and community populations. She concluded from her case study of the implementation of the Quality Schools Model in the Bering Strait School District where 98 percent of the student population is Alaska Native that the shared vision process was important for creating

focused conversation, developing mutual respect, linking Alaska Native culture to the curriculum, and for creating a "bridge" to address past injustices and inequity. (p. 182)

As part of the Quality Schools Model, development of the shared vision is not an event but is instead a process that must be revisited over time. In her study, Reagle found that the shared vision process and conversations helped the district (as a system of schools) to remain aware of the uniqueness between villages spread over a large geographic area. Developing a shared vision over such a large area was challenging and took time. She wrote:

> The time to travel and meet with parents, community members, students, and educators in all of the 15 BSSD sites was not a rushed process. Each visit allowed for conversations to take place amongst communities, as well as time for the information to be shared and discussed locally. Patience and time [are not] virtues typically followed by Western culture; however, [they] are highly valued by indigenous cultures. BSSD has many Native and long-term non-Native educators who understood this important detail. (p. 183)

2.5.6 Standards-Based Design

Fullan (2001b) considered restructuring initiatives that were limited to procedural changes, such as block scheduling, longer school day, and calendar, as insufficient for changing educators' understanding of the basic nature and purpose of teaching and learning. But he did consider restructuring of curriculum design and delivery for high student achievement effective for encouraging deep and fundamental cultural change in education. Research by Kannapel and Clements (2005) and Levine (2005) found that

when schools provide a caring, nurturing environment of high expectations for all students and staff; share leadership roles amongst all the stakeholders; utilize a curriculum and instructional program that focuses on best practices and research; and have a system in place for continuous improvement, students are successful (Kannapel and Clements, 2005; Levine, 2005).

At the core of the Alaska Quality Schools Model are eight to ten content areas, including the usual academic subjects and innovative areas such as technology, service learning, and personal development. Student competency in each content area is attained by showing proficiency in the content level's standards. Researchers, including Levine (2005) and Lezotte (2003) emphasize mastery of academic content and more authentic measurements of curriculum mastery such as portfolios, projects and actual performances (Lezotte, interviewed in Sparks, 1993). Graduation from schools using the Quality Schools Model is competency based and a result of clearly defined expectations, defined routes for achievement and self-directed responsibility for learning.

Marzano (2005) looked at the use of standards and the instructional model and tools in use in the Quality Schools Model. He examined report cards, content and performance standards, and assessment rubrics for Chugach, Lower Kuskokwim, and Bering Strait School Districts. Based on the standards and assessments in use, he calculated the number of decision points encountered by teachers at each grade level during an academic year. Because the instructional model was based on practices in place in the Chugach School District, results in the other two districts were close but not identical to Chugach.

Next, Marzano (2005) looked at the model and tools for the delivery of instruction. The delivery model was composed of direct instruction, performance tasks, thematic units, and individualized learning plans. Additionally, there was a School-to-Life component that occurred in four distinct phases for students at secondary school level. Marzano (2005) concluded that the individualized nature of instruction one of the greatest strengths of the QSM. He acknowledged that the Balanced Instruction Model provides structure and guidance that inexperienced or floundering teachers might find useful. Additionally, there is a common language that teachers and administrators use to talk about the model. But, Marzano (2005) raised concerns about sheer volume of standards and assessments. There are more student assessment data points within a given level than teachers can be expected to manage, especially since all must be recorded as well. He recommended either measurement categories (his own construct, in publication) or organization of standards into topics to scale back on the number of required student assessments.

In his evaluation of the Balanced Instruction Model, Marzano (2005) recommended a reconceptualization of the model without sacrificing its most effective elements. He called for simplification of the model by enfolding some elements into larger pieces. This would also eliminate some of the specific terminology that teachers encounter and that causes confusion. Marzano cautioned that when teachers become confused, they regress to what they are comfortable with – and would abandon the changes inherent in the Balanced Instruction Model.

2.5.7 Continuous Improvement

The Japanese word kaizen is at the heart of continuous improvement. Kaizen roughly means "step by step improvement." Continuous improvement then, is solid and lasting change based on a long series of small and achievable projects (Sallis, 1993). Systems continually send signals to themselves through circular loops of cause-and-effect relationships (Senge et al., 2000). The signals in turn drive improvement efforts.

Practicing continuous improvement means being willing to think outside of the current paradigms and problem solving methods. The Total in TQM means that everyone is involved in continuous improvement. Those willing to engage in continuous improvement need to be rewarded for their risk-taking and willingness to propose and try new ideas. Individual involvement has to be substantive, rather than pro forma. When that happens, and individuals believe their ideas count and are respected, the foundation for continuous improvement is in place (Gemberling et al., 2004).

The continuous improvement component of the Quality Schools Model calls for decision making based on a thorough review and evaluation of a wide range of performance-based and customer satisfaction-related sources of data. The concepts of continuous improvement and systems thinking are underpinned by the idea that decision making in organizations should be based on facts and focus, rather than perceptions and politics. Because the process is continuous, success can always be improved. Peter Drucker said, about the "problem" of success, "Success always makes obsolete the very behavior that achieved it. It always creates new realities. It always creates, above all, its own and different problems." (Sundre and Raisch, 2002).

Sallis (1993) noted several barriers to continuous improvement in school systems including organizational culture and the nature of organizations to seek equilibrium (if it's not broke, don't tinker with it), lack of time, external pressures, and poor or ineffective communication and process management. He said that, "the importance of a clear and positive communication strategy cannot be overstated....Without clear thinking and thoughtful communication, energy can be misdirected and wasted" (p.127).

Obviously, higher student achievement is the desired outcome from implementation of the Quality Schools Model of education. Based on 2003 data, achievement for Alaska Native students had not risen over time to the degree it had for other groups of students (McDowell Group, 2004). In an analysis of the implementation of the Quality Schools Model relative to student performance Coladarci, Smith, and Whiteley (2005) concluded that achievement of Native students as measured on state benchmark examinations had improved more in schools and districts using the Quality Schools Model compared to data for students in comparable schools not using the QSM. Data for the study were gathered via a staff survey administered to over 650 educators (teachers, aides, administrators) in the 15 coalition districts in the spring of 2005. The Re-Inventing Schools Implementation Monitoring (RIM) Survey assessed respondents' perceptions with respect to implementation of the four components of the Quality Schools Model (Leadership, Shared Vision, Standards-based Design, and Continuous Improvement). Our analysis also used each of the 15 school districts' state level achievement data in reading, writing, and mathematics in their analysis. The data covered a four-year period from 2000-2001 to 2003-2004 and included grades 3, 6, 8, and

10.

Coladarci et al. (2005) found that districts having a longer history with the QSM appear to have a higher level of QSM implementation, as measured by their survey. They also found generally higher student achievement in districts where employees reported higher levels of QSM implementation (as measured by the survey), and lower achievement where lower levels of QSM implementation were reported. Researchers were cautious however, about inferring a causal relationship between QSM implementation and higher student achievement based on their correlation coefficient. They concluded that student achievement in reading and mathematics was positively and significantly correlated to the Shared Vision and Continuous Improvement elements of the QSM.

Research to date suggests that all systemic education reform must be tailored for the local setting and conditions and that a staged implementation may be successful. Jester (2005) conducted a case study of the origins of the Quality Schools Model within the Chugach School District. He raised questions about how the model might need to be re-contextualized in other school districts seeking to implement it and concluded that since each Alaska community has unique characteristics, the implementation of the QSM within other Alaska school districts needed further research. Sizer (in O'Neil, 1995) said, "Lasting reform requires creating a climate for local educators and community members to craft their own improvement strategies" (p. 4).

One of the foundations blocks of the QSM is that it is an honest system that does not allow social promotion. This approach toward accountability with students is also

promoted at the district level. As such, the continuous improvement efforts should include a holistic examination of a district. While there are several models that can be used to do so, the Baldrige in Education Criteria (because of the Chugach School District's award) are viewed by the QSM districts as appropriate method for this assessment. The next section of this review examines the research on the Baldrige in Education Criteria.

2.6 The Quality Perspective and the Malcolm Baldrige National Quality Award

In 2001 the Chugach School District received the Malcolm Baldrige National Quality Award, becoming one of two school districts to be the first educational organizations recognized with the award. This section reviews the literature regarding quality, its relevance to effective schools, and its measurement through the Baldrige National Quality Award.

2.6.1 The Quality Perspective

Both TQM and the Baldrige Criteria focus on the implementation and measurement of quality. Experts have offered up various definitions of quality which can be broadly summarized as either 1) – quality measured by an objective, fixed set of expectations that are quantifiable, or 2) – based on customer satisfaction, which is qualitative. Sallis (1993) wrote that the quality of something is part of its nature. The word quality comes from the Latin root, qualis which means "what kind of." Quality is a relative term when applied to total quality management, where quality is measured against some standard. Quality is also dynamic, with both emotional and moral layers, which means numerous individuals and experts have defined it somewhat differently.

Sallis (1993) provided definitions for two concepts of quality – procedural and transformational. Procedural quality involves proving things have happened in accordance with predetermined specifications. Student standards-based achievement test scores, measured against performance indicators are an example. The key words for procedural quality are proving, approving, reporting, and accountability. Transformational quality is based on the need to refocus the organization on the customer versus products or outcomes. It embraces the concepts of customer care, customer service, and social responsibility. Transformational quality is achieved by determining customer requirements and them building organizational structures and a culture that empowers employees to meet the customer requirements. Peters (1987) findings related to quality based on years of research (paraphrased for education) were, 1) stakeholders will pay a lot for better and even more for the best quality; 2) school systems that provide that quality will thrive; 3) workers in all parts of the system will become energized by the opportunity to provide top quality; and 4) no school system has a safe quality lead since the quality possibilities are dynamic (and increasing) for stakeholders.

Peter Drucker maintained there were three consistent themes related to quality: managing for results, the dual purpose of doing things right while doing the right thing, and the importance of the customer (as cited in Watson, 2002). Drucker stated that many nonprofits (including education systems) don't measure their quality performance because of the belief that good intentions are enough. Drucker suggested there are several ways quality can be presented quantitatively. First is the cost of poor quality. In education this could relate to low student achievement. Second is the converse or high quality

resulting in high student achievement. Third is customer loyalty, or in education parlance, stakeholder satisfaction.

Definitions of quality put forth by some of the quality experts include (Hoyer and Hoyer, 2001):

1. *Philip Crosby*: The word quality is relative and therefore needs to be measured as conformance to requirements. Then quality can be managed by taking measurements continually to determine conformance to requirements. It is essential to first define quality, and then translate the requirements into measurable characteristics.
2. *W. Edwards Deming*: Quality must be defined in terms of customer satisfaction. The degree of quality is directly related to the extent it satisfied customer needs and expectations. Quality is multidimensional and cannot be measured by a single characteristic.
3. *Armand Feigenbaum*: Quality must be defined in terms of customer satisfaction. The customer's definition of quality is dynamic so the role of management is to recognize the evolution of the customer's definition of quality.
4. *Kaoru Ishikawa*: Quality is equal to customer satisfaction and because consumers' needs and requirements change, so does the definition of quality. Before one can say a product or service is high quality, every aspect of the organization that produced it must be of high quality.

5. *Joseph Juran*: A practical definition of quality is not possible. The best way to define quality is fitness for use, where use is associated with customer requirements, and fitness means conformance to measurable product characteristics. Juran's Pareto Principle states that as many as 80% of process problems result from 20% of causes.

Applying quality principles specifically to schools and school systems, W. Edwards Deming (2000) advised that the goal and focus of educational leaders should be on transforming school systems rather than on achieving numerical goals. It was Demings's Total Quality Management that educators turned to as a methodology for the application of quality principles to education.

2.6.2 Total Quality Management

During World War II, Deming's ideas were used to increase American industrial efficiency. Although well-received by engineers and scientists, TQM did not meet with a receptive audience of business leaders and managers. After the war, the Japanese government invited Deming to address top business leaders who were focused on rebuilding the country's economy. By 1980, Japan dominated world markets through successfully exporting consumer products. U.S. manufacturers finally accepted that the nineteenth century assembly line factory model was outdated and embraced TQM principles.

TQM theory stresses that continuous improvement of key work processes is the crux to improving quality, and also that workers inherently want to do their best work. All focus should be on improving processes to get better results and correct errors, with

managers working alongside employees to gather information and implement process improvements. No one individual is to blame for errors or performance shortcomings in Deming's view: it was the processes that caused the error and need fixing. Deming's fourteen "quality points" were promoted throughout the United States through the Baldrige Award, and in Europe though the European Quality Award. Educators found strong correlation between Deming's quality principles and effective schools research, summarized in Table 2.3 (adapted from Teigland, 1993).

Table 2.3: Deming's Quality Points Correlated to Effective Schools Research

Deming's Quality Points	**Effective Schools Research**
Constancy of purpose toward long-range improvement	Long-range goal-focused activity. Clear goals and high expectations commonly shared.
Reject commonly accepted levels of delays and mistakes	High and positive achievement expectations. Strategies to avoid nonpromotion of students. School-wide emphasis on basic and higher order skills. Effective use of instructional time.
Improve input and seek statistical evidence of quality	Frequent monitoring of student progress using a variety of measures.
Seek long-term overall (rather than piece meal) efficiency	System-wide development and improvement.
Look for problems in the system	Continuous diagnosis, evaluation, and feedback.
Use modern methods of supervision, including shared learning (managers learning from employees)	Positive school and district climate. Shared consensus on values on goals. Parent involvement and support.

Table 2.3: continued

Drive out fear	Stability and continuity of key staff. Development of a sense of community.
Break down barriers between departments	Total staff involvement in school improvement. Collaborative planning and collegial relationships.
Eliminate slogans, provide effective methods	Appropriate level of difficulty for learning tasks. Visible rewards for academic excellence and growth. Well-structured classroom activities. Instruction guided by content. Orderly and disciplined school and classroom environments. Teacher empathy and rapport with students. Curriculum articulation and organization. Emphasis on differentiated instruction and development of problem solving skills.
Eliminate work standards	Autonomy and flexibility to implement adaptive practices.
Enable pride of workmanship	Teacher-directed classroom management and decision-making. District support for school improvement. Recognition and celebration of academic success.
Institute vigorous program of education and retraining	Differentiated instruction. Professional development for teachers.
Create management structure for constant improvement of knowledge and effectiveness	Positive accountability and acceptance of responsibility for learning outcomes. Autonomous school-site management.

Many educators have criticized the application of quality principles to education as inappropriate because the work of Deming focused on satisfying customers. Within

education, a case can be made that the student is the customer. However, others who liken students to workers, call student knowledge the product, and teaching and learning the core operating process (Walpole and Noeth, 2002). Because implementing a focus on quality requires some type of data and data-driven decisions, some critics fear this will result in a narrow focus within education on visible and easily measurable outcomes such as achievement test scores, attendance, drop out rates, etc. Critics believe the focus on performance measures will inhibit creativity and other intangible and less measurable outcomes of education, such as a love of learning and development of a sense of curiosity, will suffer. (Holt, 1993)

Despite the criticism, educational leaders consider systems thinking as a helpful way to look at school reform because no single event, problem, or action is looked at in isolation but instead is viewed as a component of larger structures. In the effective schools research conducted by Edmonds and Frederickson (1979) the individual school was emphasized as the unit of change. Later, researchers realized that to sustain school improvement required a systems view of the school district as the unit of change. Lezotte (2003) summarized this shift in thinking:

> Organizational management theories provided significant additions to effective schools research and policy. The concepts of decentralization and empowerment, the importance of organizational culture, and the principles of total quality management and continuous improvement have added important dimensions to our understanding of effective schools. (p.3)

According to Senge, Cambron-McCabe, Lucas, Smith, Dutton, and Kleiner (2000), "a system is any perceived whole whose elements 'hang together' because they continually affect each other over time" (p.78).

2.6.3 The Malcolm Baldrige National Quality Award

The Baldrige Criteria for Performance Excellence offers one method for evaluating Total Quality Management. The Baldrige in Education criteria feature strong emphasis on leadership, systems thinking, changes in school culture, and data-driven knowledge management. According to Sarason (1990) these are the elements lacking in some of the previous education reform initiatives.

The Malcolm Baldrige National Quality Award was established in 1987, named for the late Secretary of Commerce under President Reagan, and awarded for three business categories – manufacturing, small business, and service. The Malcolm Baldrige Education Criteria for Performance Excellence piloted in 1995, and education was officially adopted in 1998 as the fourth category for the Baldrige Quality Award. (Health Care criteria were adopted at the same time, and that is now the fifth Baldrige category.) The purposes of the Education awards are to improve school organizational performance practices, capabilities, and results; to facilitate the communication and sharing of best practices within and outside education; and to serve as a working tool for understanding and managing performance as well as guiding strategic planning and learning opportunities. (National Institute of Standards and Technology (NIST), 2006)

The Baldrige Education Criteria for Performance Excellence embody eleven core values (NIST, 2006, pp. 1-5): visionary leadership; learning-centered education;

organizational and personal learning; valuing faculty, staff, and partners; agility; focus on the future; management for innovation; management by fact; social responsibility; focus on results and creating value; and a systems perspective. The seven Education Criteria are Leadership, Strategic Planning, Student, Stakeholder and Market Focus; Measurement, Analysis, and Knowledge Management; Process Management; and Results. These areas focus on organizational performance measured by student learning outcomes, student-and stakeholder-focused outcomes, including satisfaction, financial, budget and market outcomes, faculty and staff outcomes, internal operational performance measures of organizational effectiveness, and leadership and social responsibility outcomes. The number of areas measured is broad, so that the needs and satisfaction of all important stakeholders are represented, as well as both long- and short-term goals. The Baldrige Criteria do not specify a particular organizational structure or type of management. The Criteria are designed to focus on results rather than procedures to allow for flexibility, innovation, and responsiveness to local conditions and needs. The seven Baldrige criteria encompass Deming's fourteen quality points.

The Baldrige Education Criteria are primarily focused on teaching and learning since this is the core process in education. The Education Criteria hold that students are the key customers of education organizations, and other groups such as parents, employers, and communities are stakeholders. Within the Education Criteria "excellence" is defined as having three qualities: a well designed and executed assessment strategy; year-to-year improvement in the key measures and indicators of performance, especially student learning; and demonstrated leadership in performance and performance

improvement relative to comparable organizations and appropriate benchmarks. (NIST, 2006, p. 7) The diagram in Figure 2.1 shows the systems perspective of the seven Baldrige Education Criteria and key linkages among the categories.

2.6.4 Relationships of Baldrige Categories

In practice, others have found different relationships among Baldrige categories than those depicted in Figure 2.1. Winn and Cameron (1998) conducted research to determine the strength of correlations between the Baldrige categories, using a survey administered to 4,800 respondents at a large Midwestern university. They concluded that the assumed relationships in Figure 2.1 were different in actual practice. They proposed a different view shown in Figure 2.2.

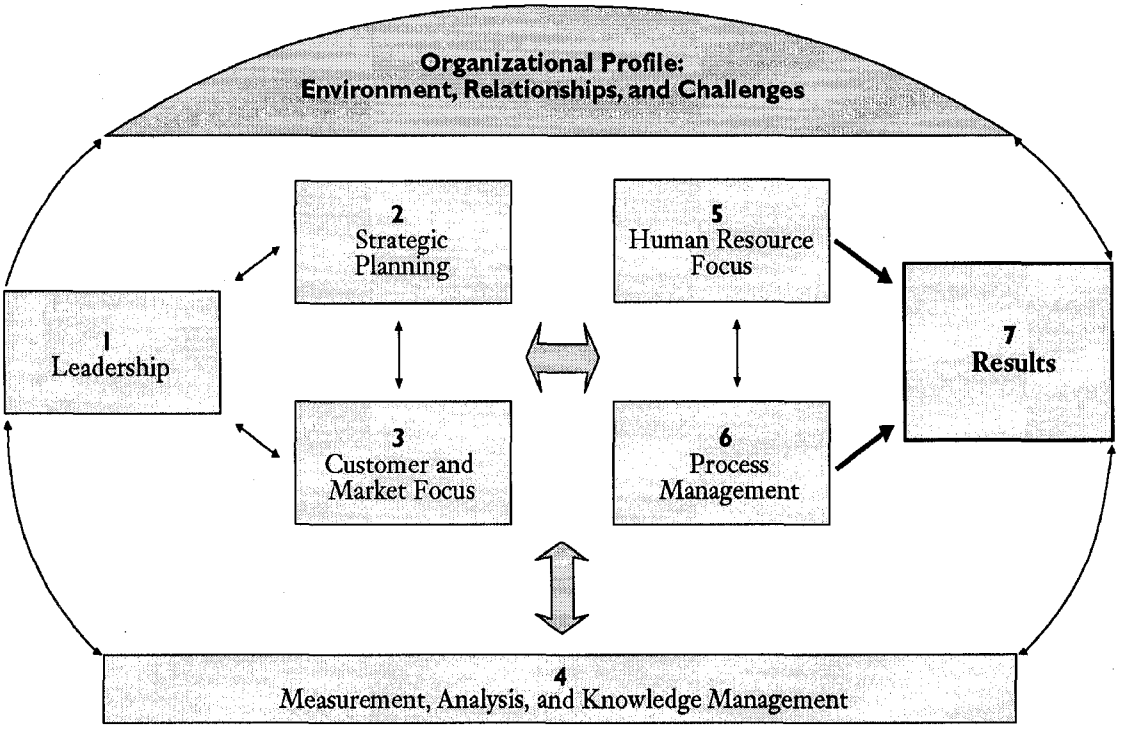

Figure 2.1: Baldrige education criteria for performance excellence framework.

Winn and Cameron (1998) concluded that the main impact of leadership was on the systems dimensions of process management, faculty and staff, strategic planning, and knowledge management, rather than on the more outcome related dimensions of student and stakeholder focus and results. They found that the major influence of leaders was on designing effective systems and processes for achieving results, rather than a direct relationship between leadership and results. Process management was the one dimension with a significant and strong direct effect on both student and stakeholder focus and results. This supports the importance of process improvement in achieving quality, and

Deming (2000) argues that the majority of quality problems are due to the structure of processes, rather than to the employee's motivation or ability. Further, their results

showed process management as the one dimension with a significant and meaningful relationship to the two outcomes (student and stakeholder focus and results) and leadership.

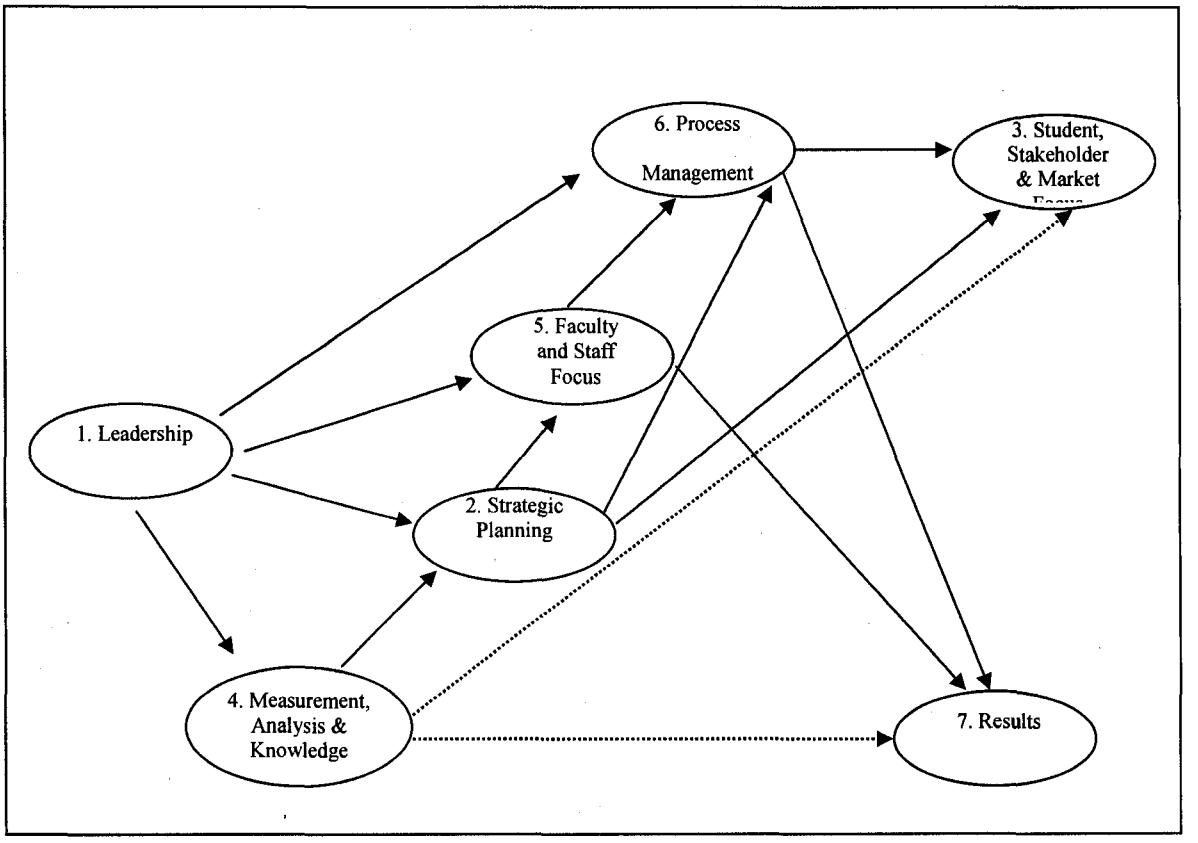

Figure 2.2: Relationship among Baldrige categories from Winn and Cameron (1998)

Winn and Cameron (1998) found a significant relationship between process management, strategic planning, and knowledge management, but there was an order to the relationships, as shown by the direction of the arrows in the diagram. Student and stakeholder focus were significantly affected by strategic planning and process management and to a lesser degree by knowledge management. There was a weaker but still significant relationship between knowledge management and both of the outcome

dimensions, shown by the dotted line. Knowledge management was most significantly correlated to leadership and strategic planning (Winn and Cameron, 1998).

In another study within business, Samson and Terziovski (1999) examined the relationship between the award categories for business and performance outcomes. In their study, the categories of leadership, people management (called Process Management in the education criteria), and customer focus (the student, stakeholder and market focus) were the strongest predictors of performance.

Evans and Jack (2003) studied twenty possible correlations and linkages among the Baldrige categories. They concluded that employee satisfaction is significantly correlated with process performance and product quality – in other words, increased employee satisfaction leads to higher performance. They also found process performance correlated significantly with market quality. Customer satisfaction correlated with and was dependent on product quality, service quality, and work system improvement. Work system improvement was not surprisingly also correlated significantly with financial performance.

Walpole and Noeth (2002) conducted a meta-analysis of the literature and empirical research of schools and school districts using the Baldrige in Education criteria as part of their reform or improvement strategy. They concluded that successful implementation of Baldrige in Education is not easy to achieve, and that implementing Baldrige successfully involves a long-term perspective, and a focus on changing core processes, especially teaching and learning. To have the greatest impact on teaching and learning, elements of the Baldrige criteria should be included in teacher performance

expectations. Hackman and Wageman (1995) found that in schools where process quality improvements were affecting teaching and learning, the building principal led the improvements, and process quality improvement was included in teacher evaluations.

Walpole and Noeth (2002) noted that information about the effects of Baldrige implementation was very limited and at that time there was little empirical data that gave details about how, why, or in which contexts an implementation of Baldrige in Education can succeed. They noted that detailed information and comprehensive data are essential for successful implementation of a Baldrige-based reform initiative and that failing to use data in decision making, and not changing the core teaching and learning processes are major reasons that many reform efforts fail.

Detert et al. (2000) studied ten high schools over a four year period to follow their implementation of total quality principles. They found that teachers most often separated process quality improvement from teaching. When teachers did focus on improvement in the classroom, it was related to discipline and classroom management processes rather than teaching and learning. In their study, substantial data on core processes was collected in the respective districts, but was not available to classroom teachers for decision making. They also found that professional development to accompany the desired process changes was missing. Most districts did not have resources to provide training in anything except a voluntary manner and/or scheduled outside the school day, which reduced participation.

Corace (2000) used a self-reported 62-item questionnaire that was correlated to student outcomes to look at implementation of Baldrige based school reform broken

down by teaching level, years of teaching experience, and years of experience within a reform initiative that had been in place for eight years. She found higher levels of importance and application of Baldrige criteria reported by teachers with more than two years of involvement in their district's school reform initiative and higher reported levels of importance attached to implementing the criteria and actual application by elementary teachers versus secondary. Results also included positive correlations between years of involvement in quality school reform and the student outcome of attendance, and between years of teaching and all student outcomes at the secondary level.

2.6.5 Relationship of Baldrige in Education to the QSM

While the Quality Schools Model is a strategy and structure for systemic education reform, the Baldrige in Education criteria are tools for measuring alignment with quality principles. The Baldrige criteria for measuring performance excellence represent a comprehensive and holistic set of measures that can be used to examine individual school and school system reform efforts from a quality perspective regardless of differences in reform structure from one initiative to another. The four components of the Quality Schools model encompass the core values of Baldrige in Education that were discussed in detail earlier in this chapter, shown in Table 2.4.

Table 2.4: Correlation of Baldrige Core Values with QSM Components

Quality Schools Component	Baldrige Core Values
Leadership	Visionary leadership
	Valuing faculty, staff and partners
	Management by fact
	Systems perspective
	Focus on results and creating value
Shared Vision	Valuing faculty, staff and partners
	Focus on the future
	Focus on results and creating value
	Learning centered education
	Social responsibility
Standards-Based Design	Learning centered education
	Social responsibility
	Focus on results and creating value
Continuous Improvement	Managing for innovation
Organizational and personal learning	Management by fact
Valuing faculty, staff, and partners	Social responsibility
Agility	Focus on results and creating value
Focus on the future	Systems perspective

2.7 Process Management and the Quality Schools Model

2.7.1 Definition of Process Management

A central part of the QSM, continuous improvement, is exemplified by a regular creation and refinement of a school district's processes. This management of processes although typically not given a lot of public attention, is more and more viewed as a critical piece to a school district's well being (Fullan, 2001a; Senge, 1990). Grayson (2002) defines process management as "the application of knowledge, skills, tools, techniques and systems to define, visualize, measure, control, report and improve processes with the goal to meet the organization's requirements in an efficient manner."

Process Management has its roots in the world of business where it was long ago recognized as a central part of an organization's activity (Teigland, 1993). There is then, a plethora of research on process management in business but unfortunately, there is not a lot of research on how schools incorporate this practice. Historically, process management was most influenced by Deming's work in Japan following World War II that led that country to rethink its approach toward manufacturing (Deming, 2000). As noted earlier, he stated that an inefficiency or mistake should not be viewed as an individual's problem, but rather as a shortcoming of the process that was used to perform that function (Walpole and Noeth, 2002). With the advent of NCLB and the subsequent call for a higher level of accountability educational organizations have begun to look inward at their structure as a way to improve student performance (Hayashi, 2004). This introspection has led educational leaders to look to business practices for making

scientifically based data decisions and to improve such areas as recruiting and cultivating staff (Buntrock et al., 2005)

2.7.2 Process Management and the Quality Schools Model

An intricate part of the Quality Schools Model is the attention given to the organization's processes. The QSM's four components and the corresponding literature with regard to process management reveal how this practice of process management is pervasive throughout the QSM. In the area of leadership, the QSM promotes leaders that are embracing what Senge (1990) called leaders as a designer. Senge stresses that the leader who creates "sound processes that serve as the foundation of the organization's design will ultimately be a leader who works to empower others." (p. 341) Okes (2002), comments that in order for school reform to work, school leaders must include (in their reform effort) a series of specialists that utilize the process management skills of the business world.

With regard to a district's shared vision, it is my experience that without a consistent process for collecting and distributing stakeholder input, the resulting shared vision will not truly be the organization's vision. I suspect that in those rural Alaska districts that did not successfully implement the QSM, there was likely a lack of a defined process for creating the shared vision. Although Block (1993) is not fully supportive of the Baldrige Criteria as a way to improve an organization-he feels that the criteria are too controlling- he does argue that a shared vision is a function of ownership and that top management must create processes that become a part of the organization's culture that will in turn allow for this ownership. Hedge (2005), states that the wholeness of an

organization that results from embracing a shared vision must be based on well established processes. Furthermore, he emphasizes the need for a regular review and if necessary, revision of processes. He notes that, "automating a bad process, just makes a bad process faster" (p.21).

The third area of the QSM, Standards-Based Design, is dependent on a high degree of process management. This area of the model is designed to make the instructional process as efficient as possible. Schmitz (2006) argues that learning and instruction can be conceptualized from a process perspective. He then states that this will "lead to an enhanced ability to study trajectories of learning over time" (p. 437). If done well, teachers will be equipped with processes for much of their more routine practices. For example, the selection of a resource to support curriculum will have an established process that is thorough enough to ensure that the district moves away from the ad hoc efforts of chasing the latest, most appealing textbook. Sallis (1993) stresses the need for small teams, within an organization, to follow a strict set of processes when working on a project.

The fourth component of the QSM, Continuous Improvement and Process Management is of course not unique to education since it is through this area that business strives to achieve improvement. In the QSM, the tracking of process flow (Silver, 2006) becomes a standard part of a district's efforts to improve. Karathanos and Karathanos (2005) advocate the need for schools to follow business' lead and use a balanced scorecard (BSC). Further, they state that the need for a refinement of processes at each level is critical to improvement efforts. Grayson (2006), states that process

management is an important link to improving K-12 education and that it is an intricate part of meeting the goals of NCLB. Continuous Improvement is dependent on a systematic methodology that must create a complete, logical, and orderly approach to improving processes (Reid, 1992).

The need for school districts to improve their process management does not receive a lot of attention compared to the cry for raising student test scores. There is however, a growing understanding by school administrators that a quality school district gives an adequate amount of attention to its processes. It is understood that districts must document their processes and procedures and work to refine these if they are to be considered quality. As an example, in 2002 the Wenatchee School District was certified under the ISO 9001: 2000 Management System Standard (Wenatchee Business Journal, 2002). The adoption of a process management system led to this certification.

2.8 Summary

Hargreaves and Fink (2000) wrote that ultimately there were just three things that matter about education reform, which they posed in the form of questions: One, does it have depth, i.e., does it improve important rather than superficial aspects of student learning? By depth, they meant a focus on developing not just higher-order thinking skills such as problem solving, but also cultural, emotional, and social (civic) learning. Cultural learning should be two way – students situating new learning within their cultural context, and teachers learning about and developing a respect and appreciation for their students' culture. Depth of education reform includes teachers developing emotional bonds with students. Hargreaves (1998) said, "Emotional understanding – the ability to

read instantaneously how well students are learning or are engaged in learning – is foundational to the standards agenda, not a sidebar to it."

CHAPTER 3: METHODOLOGY

The purpose of this concurrent mixed methods study is to describe the implementation of the Quality Schools Model in three rural Alaskan school districts by examining the importance and existence of the Baldrige in Education Criteria Process Management as perceived by faculty, staff, and community members. In this study, we used a questionnaire administered to school staff to measure the importance and existence of the Baldrige Criteria of Process Management, and to explore the relationship between respondents' demographic characteristics and the degree to which they consider Process Management to be important and in practice. At the same time, implementation of the Quality Schools Model was described through semi-structured interviews of school staff and community members.

This section of this chapter outlines the methodology for this study according to the following organizational framework: Research Questions; Theoretical lens and Research Approach; Population of the Study; Questionnaire Development and Administration; Analysis of Quantitative Data; Interviews; Triangulation; and Chapter Review. Elements of the methodology design and implementation that were shared by the four cohort members will be identified through the use of "we." Methodology elements that were conducted independently by me will be identified through the use of "I".

3.1 Research Questions

Four research questions with supporting hypotheses serve as the basis for this study.

Research Question 1: To what extent do administrators, staff, and community members perceive Process Management to be important as a part of the Quality Schools Model in their schools?

Hypotheses:

1. Certificated staff and classified staff differ in the extent to which they perceive Process Management factors to be important in their schools.
2. Responses of respondents with more educational work experience differ from those with less educational work experience in the extent to which they perceive Process Management factors to be important in their schools.
3. Responses of respondents with more experience in the Quality Schools Model differ from those with less experience in the Quality Schools Model in the extent to which they perceive Process Management factors to be important in their schools.

Research Question 2: To what extent do administrators, staff, and community members perceive Process Management to be in practice as a part of the Quality Schools Model in their schools?

Hypotheses:

1. Certificated staff and classified staff differ in the extent to which they perceive Process Management factors to be in practice in their schools.
2. Responses of respondents with more educational work experience differ from those with less educational work experience in the extent to which

they perceive Process Management factors to be in practice in their schools.

3. Responses of respondents with more experience in the Quality Schools Model differ from those with less experience in the Quality Schools Model in the extent to which they perceive Process Management factors to be in practice in their schools.

Research Question 3: Are there statistically significant differences between the extent to which respondents perceive Process Management to be important and the extent to which they perceive Process Management items to be in practice as part of the Quality Schools Model in their schools?

Hypotheses:

1. The difference between the extent to which respondents perceive Process Management factors to be important and the extent to which they perceive ----Process Management factors to be in practice vary for certificated staff and non-certificated staff.
2. The difference between the extent to which respondents' perceive Process Management factors to be important and the extent to which they perceive Process Management factors to be in practice vary for respondents with more and less years of educational work experience.
3. The difference between the extent to which respondents perceive Process Management factors to be important and the extent to which they perceive Process Management factors to be in practice vary for participants with

greater than and fewer than 3 years of experience with the Quality Schools Model.

Research Question 4: What are the relationships among the Baldrige Criteria that describe the Quality Schools Model?

Hypotheses:

1. The variable of Process Management is has a direct effect on the Baldrige Criteria variable Results.
2. The variable of Process Management affects the Baldrige Criteria variable Results through the Faculty and Staff Focus Criteria

3.2 Theoretical Lens and Research Approach

Creswell (2003) identifies four schools of thought, or paradigms, that can be used to guide researchers as they determine the best strategies of inquiry and methods to use in addressing research questions: "postpositvism, constructivism, advocacy/participatory, and pragmatism" (p. 6). Postpositivism relates closely to the scientific method whereby researchers seek to identify the causes that influence outcomes, and to reduce broad ideas into a discrete set of ideas to test. Constructivists, conversely, set broad, general, open-ended research questions that value the "meanings others have about the world" (Creswell, p. 9) and utilize qualitative research approaches. Researchers who utilize an advocacy/participatory lens approach their qualitative research with an action agenda for reform that seeks to give voice to those who have been marginalized or disenfranchised (Creswell, p. 10). Finally, pragmatists consider all possible approaches to understanding a problem and consider the research problem, rather than commitment to a quantitative or

qualitative research approach, as most important. "Pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as to different forms of data collection and analysis" (Creswell, p. 12). The lens of pragmatism and a mixed-methods approach guides this study to research.

There is growing consensus among researchers that qualitative and quantitative research can complement each other (Gall et al., 2007). Johnson and Onwuegbuzie (2004) stated that, "...researchers should collect multiple data using different strategies, approaches, and methods in such a way that the resulting mixture or combination is likely to result in complementary strengths and non-overlapping weaknesses" (p.18). Sydenstricker-Neto (1997) state that research strategies which integrate different methods "encourage us to probe the underlying issues assumed by mixed-method" and "produce better results in terms of quality and scope" (p. 4). Maxwell (1998) argued that

> the complementary use of qualitative and quantitative approaches provides a greater range of insights and perspectives and permits triangulation or the confirmation of finding by different methods, which improves the overall validity of results, and makes the study of greater use to the constituencies to which it was intended to be addressed. (International Food Policy Research Institute, 1998, p. 3)

We selected a mixed-methods approach for this research for several reasons. We sought to describe implementation of the Quality Schools Model as comprehensively as possible recognizing the unique cultural perspectives within each setting, while acknowledging limitations given the remote geographical setting of the three research

sites. The quantitative component of the research design facilitated reaching the largest possible number of participants and focused specifically on components of the QSM that are familiar to school staff. The qualitative component allowed both the elaboration of results from the quantitative component and the inclusion of participants for whom the quantitative component was not appropriate given its school-specific content. Further, while the research sites are similar in many ways, they are unique both culturally and geographically. The qualitative component of the research design intended to provide more opportunity for that uniqueness to be reflected in the data than might occur with strictly quantitative methods.

Researchers use the term "complementary" to describe a mixed-methods approach whereby "the results of one method were used to elaborate, enhance, illustrate, or clarify the results from another method" (McMillan and Schumacher, 2001, p. 543). In order for a complementary approach to be truly beneficial to the research process, it cannot simply include "add-on" components. Complementarity "seeks elaboration, enhancement, illustration, or clarification of the results from one method with the results from the other method" (Greene et al., 1989, p. 257). Identifying mixed-methods research as complementary, however, does not prescribe specific research procedures.

The design of this mixed-methods study employed a concurrent nested strategy (Creswell, 2003, p. 218). "Unlike the traditional triangulation model, a nested approach has a predominant method that guides the project. The data collected from the two methods are mixed during the analysis phase of the project" (p. 218). The predominant method for this study was quantitative with data gathered through a questionnaire

administered to school staff. Qualitative data were gathered through interviews conducted with school employees and community members. Data analysis for each method occurred separately and was then integrated in order to answer the research questions.

3.3 Population of the Study

We selected three rural Alaskan school districts, Bering Strait, Kuspuk and Lake and Peninsula, as the focus of the study because they had implemented the Quality Schools Model district-wide for at least four years. The superintendent of each district agreed to cooperate in the study.

3.4 Questionnaire Development and Administration

3.4.1 Participants

All administrators, teachers, and support staff with district email accounts in the three target districts were invited to complete the questionnaire. This included a total of 538 potential respondents as outlined in Table 3.1. Response rates varied by district but generally were about 50% for the certified staff and about 30% for the classified staff members. Actual response numbers and rates are provided in the Analysis of Quantitative Data section of this chapter.

Table 3.1: Potential Respondent Data

District	Total N	Certificated N	Classified N
BSSD	387	208	179
LPSD	74	57	17
KSD	77	43	34
TOTALS	538	308	230

Total Possible N = 538

3.4.2 Questionnaire Development

Gall et al. (2007) made a distinction between the terms survey and questionnaire. Using their definition, survey is the more general label to describe research that is mixed method, using both a questionnaire and interviews to gather data. The questionnaire then, is the quantitative data gathering tool. The development of the questionnaire for this research had three stages. In the first, we studied 19 questionnaires for measuring school improvement and education reform. This review included six questionnaires from the North Central Regional Educational Laboratory (2005), two from the National Center for Education Statistics (2004a), four that were written for the ReInventing Schools Coalition and designed to measure implementation of the four components of the QSM (Cope and Crumley, 2003), two from the Learning Center (2002) and one each from the Southern Minnesota Initiative Foundation (2003), the National Education Association (2004), the National Institute of Standards and Technology (2005) and DuFour et al. (2006). Following this review of existing questionnaires, we wrote 148 statements that were each tied to one of the four Quality Schools Model components and planned to align each statement with one of the seven Baldrige in Education Criteria.

Next, we piloted the initial survey by asking a group of respondents to complete a categorical analysis of the items. The participants were 22 teachers and administrators attending QSM training who worked in districts using the QSM. The categorical analysis consisted of coding each of the 148 statements to one of the seven Baldrige categories that the respondent thought the statement most closely aligned. Unfortunately, the analysis from the activity showed little consistency in the coding by respondents. After

further study of the questionnaire items, we concluded that the questions asked about the implementation of very specific elements or processes related to the Quality Schools Model of education reform and that the language used in the questions was not general enough to obtain the desired alignment with Baldrige in Education criteria. The cohort also determined that the respondent group as a whole did not have sufficient familiarity with the Baldrige Criteria to respond to the statements in a consistent manner since there was no control placed on their level of experience with either the QSM or Baldrige.

We then searched for questionnaire tools written to measure education reform using Baldrige in Education criteria, with the premise that the Baldrige criteria would be useable to measure any reform effort, including the implementation of the QSM in Bering Strait, Kuspuk, and Lake and Peninsula School Districts. In addition, another QSM school district (Chugach School District) had already demonstrated the use of Baldrige criteria to measure their implementation of the QSM. Two existing questionnaires (Dale, 2003 and Miller, 1996) designed to measure the Baldrige in Education Criteria were identified and permission was obtained for their use.

The first of the Baldrige-related questionnaires, The School District Quality Profile, was designed for school districts to self-assess quality practices derived from the Malcolm Baldrige National Quality Award Criteria (Miller, 1996). The purpose of Miller's research was to create an instrument that could provide a baseline measurement for school improvement. Miller's instrument included 50 statements with a six-point Likert scale. Content validity of the School District Quality Profile was determined from four sources of data: responses from expert reviewers, input from graduate students,

responses from questionnaire respondents, and results from the administration of the questionnaire. We used Cronbach's Alpha to analyze reliability by category, subcategory, and statement. Five of the seven Baldrige categories had acceptable alpha correlations (.7 or higher). Of the sixteen subcategories that contained two or more items, two of them had unacceptable coefficients (less than .5) and four subcategories which contained only two items had coefficients that indicated a need for improvement (less than .6). Miller recommended a further refinement of the questionnaire in order to establish clear and concise content and to reduce educational jargon; to ensure that each subcategory contained at least two statements; and to review of items in the categories of Leadership and Strategic and Operational Planning which had coefficients of less than .7.

The second questionnaire was designed to assess perceptions of school staff concerning the importance and existence of the Baldrige Criteria (Dale, 2003). Subjects for the study included the 378 administrators and staff of seven probationary Tennessee schools prior to the schools' involvement in a Baldrige Education Pilot program. The questionnaire contained 70 statements to which participants indicated the degree to which they considered that statement to be important, as well as the degree to which that concept was in existence in their schools. The same 5-point Likert scale was used for both the "importance" and "existence" responses. Content validity for the questionnaire was established based on feedback from expert reviewers who identified the Baldrige category to which each statement related. Two internal consistency estimates of reliability were computed for the perception and existence scales. The Spearman-Brown

corrected correlation had a value of .9191; and the coefficient alpha had a value of .93 both indicating sufficient reliability.

In developing the questionnaire for this study, the four cohort members coded the 120 items from the Dale (2003) and Miller (1996) questionnaires to one of the seven Baldrige categories and twenty-eight subcategories. Although these statements had been previously coded in the Miller questionnaire, changes over the last ten years to the Baldrige Criteria and content of the categories necessitated a thorough recoding using a more current version of the criteria. For the purpose of this questionnaire and research, the 2006 Baldrige Criteria were adopted as the standard. During the coding, the cohort members discussed items for which there was not agreement regarding the category and subcategory to the items most closely related. With the objective of equalizing the number of items relating to each Baldrige sub-category, each cohort member focused on at least one category in order to eliminate items from over-represented sub-categories and to write new items for underrepresented sub-categories. Cohort members used the following "Guidelines for Designing a Questionnaire" (Gall et al. 2007 p. 233) to analyze existing items and to write new items:

1. Do not use technical terms, jargon, or complex terms that respondents may not understand.
2. Avoid terms like several, most, and usually, which have no precise meaning.
3. State each item in as brief a form as possible.

4. Avoid negatively stated items, which are likely to be misread by respondents.
5. Avoid "double-barreled" items that require the subject to respond to two separate ideas with a single answer.
6. Avoid biased or leading questions.

We then collaboratively focused on each category in order to reduce the number of items per Baldrige category to no more than fifteen. Items containing technical terms or more than one key concept were revised further. This resulted in a questionnaire with a total of 84 items.

Two Likert-type scales were developed in order to assess participants' beliefs about the importance of Baldrige concepts, and the degree to which they saw the concept in practice in their schools or districts. Szulanski (2003), in his research on transfer of business practices and knowledge found there could be large gaps between beliefs or expected use of a practice and what actually transferred or occurred. He found that "routinized use of causally ambiguous knowledge was often accompanied by gaps between [expected] and actual patterns of use" (p. 26). Further, he found that where there was no causal ambiguity (meaning there was a complete understanding by the source of what was to be copied or replicated) then the ideal description of the practice corresponded closely to actual practice or reality. But when the functioning of the exemplar being replicated or transferred wasn't well understood, causal ambiguity existed; the higher the causal ambiguity, the greater the gap between the description of the ideal and reality. Successful transfer of a practice hinged on accurately

communicating relevant information that allowed recipients to reconstruct every important detail of the necessary activities. Because it is possible that causal ambiguity may exist regarding the transfer of the Quality Schools Model resulting in transfer stickiness, researchers included both a belief and practice scale for each item of the questionnaire. The "belief" response scale for this questionnaire included "strongly disagree", "disagree", "agree", and "strongly agree". The "practice" response scale included "never", "occasionally", "frequently", and "always".

I chose a four point Likert-type scale for responses, without a neutral response option for this questionnaire design. According to Zhao (2003) a neutral response may discourage cognition where it is possible to select a neutral or no-opinion option. The need for a neutral response differs depending on whether questions are factual or attitudinal. Respondents may choose a neutral response on an attitudinal survey if it is available, because they have not thought about their opinion. Without a neutral choice, respondents must become engaged to select a positive or negative response to correspond with their opinion. A neutral or "don't know" response is more clearly needed when questions are factual and respondents might legitimately not know the answer (Walonick, 2004). Nowlis, Kahn, and Dhar (2002) found in controlled experiments with undergraduate university students, that the possibility of response bias resulting from the no neutral response could be controlled if respondents were able to opt out of individual questions or the whole survey at any point. In this web-based questionnaire delivery mode, respondents could opt out at any point by simply closing their Internet browser to cancel their responses.

Once the questionnaire was completed, readability was calculated using the algorithm for the Flesch-Kincaid grade level. Readability tests rely on number of words per sentence and number of syllables per word and are unable to measure factors related to text layout and design or the background knowledge of the individuals who approach the task of reading the text. Nonetheless, readability scores do provide some prediction of the reading ease for a document. The Flesch-Kincaid score is a measure of the level of education required to understand the content of a document. The Flesch-Kincaid readability grade for the questionnaire was 10th grade, with 34 out of 98 sentences containing twelve or fewer words, and nine sentences with more than 27 words. The readability for the companion Informed Consent was grade 8.6, with 13 out of 34 sentences shorter than twelve words, and three long sentences containing more than 27 words. The readability of the survey directions was 9th grade, composed of eleven sentences.

3.4.3 Expert Review

We conducted an expert review in order to establish content-related evidence of test validity for the questionnaire. "Content-related evidence typically is determined systematically by content experts, who define in precise terms, the universe of specific content that the test is assumed to represent, and then determine how well that content universe is sampled by the test items," (Gall et al., 2007, p. 196).

Four Baldrige Examiners served as expert reviewers for our questionnaire. Baldrige Examiners act as reviewers of organizations that have applied for the Baldrige National Quality Award. Examiners participate in a four-day training session that

prepares them to review, write an analysis of, and score written applications for the Award. Additionally, they complete a 30-40 hour case study evaluation prior to attending the training.

The expert reviewers assessed each questionnaire statement on its alignment to the Baldrige category and subcategory to which it was assigned. The group also provided written feedback on those items that did not align to the Baldrige category or subcategory. We then deleted, revised, or added survey items in response to this analysis from the expert reviewers and results of a field pre-test.

3.4.4 A Comparison of Web-Based versus Paper Questionnaires

We decided to electronically administer the questionnaire through the Internet after considering the pros and cons of this form of questionnaire delivery. While some research shows that web based surveys often have a lower return rate than mail surveys (Solomon, 2001; Tomsic et al., 2000), other research (Kiernan, 2005) indicate that the web-based method is superior to the paper and pencil approach. Yun, Yun and Trumbo (2000) found, when examining data from a survey administered to members of a professional association using three modes of delivery (postal mail, e-mail and Web-based) that the Web-based delivery did not bias results. Cheskis-Gold, Loescher, Shepard-Rabadam, and Carroll (2004) provided a concise summary of the pros and cons of using web-based technology to administer a questionnaire; this information is summarized in Table 3.2.

After considering that respondents were geographically disbursed and had school access to technology, we determined that the targeted population of school district

employees' regular use of e-mail and the Internet would overcome the mentioned limitations. A second consideration in this decision was the expediency of the electronic format. The remote location of many of the schools would likely cause delays and lapses in traditional mail communication. Finally, we felt that the motivation to complete the questionnaire would be greater with a web-based approach because of the offered incentives of gift cards to randomly selected completers. A web format offered quick gratification for respondents when they learned they would receive a gift card. We hoped this would then encourage others at the same work site to complete the questionnaire. As Cheskis-Gold et al. (2004) noted, the development of a Web-based questionnaire requires some specialized skills in technology. Two of the cohort studying the QSM had previous web-based survey technology experience (Cope and Crumley, 2003) which was another consideration that made a web-based questionnaire possible for this research.

The primary goal of a web-based questionnaire was to get respondents to answer all the questions as accurately as possible. The focus was on making the questionnaire taking process as streamlined and easy to complete as possible with minimal distractions.

Table 3.2: Advantages and Disadvantages of Web-based Surveys (Cheskis-Gold et al., 2004)

Advantages	Disadvantages
Savings in printing, postage, data entry.	Need programming and IT expertise.
No data entry errors from hand-entry. (However, poor programming could lead to lost data.)	Certain populations are not comfortable with using personal computers.

Table 3.2: continued

Shortened timeframe to administer surveys	Must have accurate email lists.
Easier and cleaner to provide skip patterns or survey sections customized to different respondent populations.	Web surveys are not recommended for email software that doesn't support web access. Must be able to click on a url provided in an email and to have it bring respondent to a web page.
Almost immediate access to data for analysis.	There may be problems finding software that is appropriate for both PCs and Macs, or developing surveys that run on both platforms.
Can easily link to background data, if appropriate (e.g., gender, yrs. of service, etc).	Data provided via a web survey are not anonymous, although the survey administrators may choose to keep the results confidential.

Several researchers and technology experts provided guidance related to the design of web-based surveys (Gales, 2000; Crawford et. al, 2005; and Archer, 2003). Crawford et al. (2005) said, "Screen design is arguably where the most deviation from known data collection methodologies exists" (p. 47). The cohort used that premise to create standards for four categories related to web-based surveys: screen design, questionnaire writing, respondent communications, and processes. Tufte (2001) advocated for design that is free from clutter that distracts readers from the central message. He suggested using a muted background for the page or pages to allow for good contrast between the text and the background, sparing use of bright colors, and use of the same color for all items that belong to the same category.

In their proposed standards for the design of web surveys Crawford et al. (2005) recommended that any logo and contact information be placed in an out-of-the-way location on each screen. Those items should be there if respondents need it, but in a manner that allows most people to develop "banner-blindness" and ignore it. A line or change of color should set the questions apart from the rest of the viewing screen. The screen should also contain a progress bar or page number, i.e., "page 1 of 6" that tells respondents how far they have progressed through the questionnaire. Crawford et al. also recommended organizing a long questionnaire as pages, avoiding the need to scroll down through a long list of questions on one page. They recommended use of black font color for text and error messages, if used, that give very specific information about the error. For this survey where forced-response was used, respondents received a very specific error message if they had not answered all the items on a page, when they tried to proceed to the next page. The message said, "Please select a response for question #__." Crawford et al. also made recommendations for a maximum of twelve grid columns, which included a column for the questions. All response columns should be evenly spaced, so no response choice receives more or less attention than the others. Norman (n.d.) advised that web-based surveys should always be password protected to restrict access by unauthorized respondents. This cohort of researchers used the standards, recommendations, and web design principles just noted in the design of the Quality Schools Model questionnaire for this study.

3.4.5 Field Pre-Test

In order to establish internal reliability, the cohort conducted a field pre-test of the questionnaire. A representative sample of 20 administrators, teachers, and staff from Chugach School District, a rural Alaskan school district that is created the Quality Schools Model, participated in the field pre-test. To establish internal reliability, the cohort calculated a value for Cronbach's Alpha separately for each of the seven Baldrige categories. In the final instrument we retained seventy-two items that allowed for sufficient reliability. Table 3.3 details these results.

3.4.6 Questionnaire Administration

Two weeks prior to administering the questionnaire, we sent an email to all participants to introduce the cohort members, provide an overview of the study, and explain the incentive. We electronically administered the questionnaire via a secure third-party website. The cohort linked a database to the survey to capture participant responses while they completed the questionnaire. We sent an email to each participant containing an explanatory cover letter and informed consent, request for completion, and link to the questionnaire. We asked participants to complete the questionnaire within one week of receiving the email. Table 3.4 details the contacts made with the respondents.

Table 3.3: Pilot Questionnaire Reliability with 84 and 72 Items

Questionnaire Category	Alpha Before Cut Importance Scale	Alpha After Cut Importance Scale	Alpha Before Cut Practice Scale	Alpha After Cut Practice Scale
Leadership	0.94	0.93	0.84	0.84
Knowledge Management	0.90	0.90	0.82	0.82
Process Management	0.91	0.91	0.85	0.85
Results	0.89	0.89	0.72	0.73
Staff Focus	0.89	0.88	0.80	0.800
Student/Stakeholder/ Market Focus	0.90	0.90	0.77	0.730
Strategic Planning	0.88	0.87	0.72	0.72

N = 20

Table 3.4: Contact Log to Elicit Questionnaire Participation

Lake and Peninsula School District

Date	Contact Type	Contact Information
4/16-07	email	District Superintendent to get individual email addresses for all staff
04/17/07	email	Cohort and Survey introduction to all staff

Table 3.4: continued

04/24/07	email	Survey access directions sent to all staff
05/02/07	email	Encouraging follow-up prompt to all staff
05/10/07	email	Thank you to all respondents requesting them to encourage non-respondents. Announcement of prize winners thus far.
05/10/07	email	Encouraging follow up to updated list of non-respondents. Announcement of prize winners thus far.
05/16/07	phone	Phone calls to principals to encourage non-respondents
05/16/07	email	Now that the school year has ended message to non-respondents
Ongoing individual staff contacts (phone and email) to answer survey questions, provide survey technical assistance, and encourage participation.		

Bering Strait School District

Date	Contact Type	Contact Information
04/16/07	email	Cohort and Survey introduction to all staff
04/24/07	email	Survey access directions sent to all staff
04/25/07	email	Contact district technology coordinators to get breakdown numbers of district certified and classified staff.
05/02/07	email	Encouraging follow-up prompt to all staff
05/09/07	email	District office staff member to get individual staff member email accounts

Table 3.4: continued

05/15/07 to 05/17-07	email	Encouraging follow up to updated list of non-respondents. Announcement of prizewinners thus far.
05/15/07 to 05/17-07	phone	Phone calls to principals to encourage non-respondents
05/19/07	email	Now that the school year has ended message to non-respondents
Ongoing individual staff contacts (phone and email) to answer survey questions, provide survey technical assistance, and encourage participation.		

Kuspuk School District

Date	Contact Type	Contact Information
04/20/07	email/phone	Contact Superintendent for district email
04/24/07	email	Cohort and Survey introduction to all staff
04/25/07	email	Survey access directions sent to all staff
05/02/07	email	Encouraging follow-up prompt to all staff

3.5 Analysis of Quantitative Data

3.5.1 Response Data

The total number of respondents, as shown in Table 3.5, was 212 including 125 from Bering Strait School District, 49 from Kuspuk School District, and 38 from Lake and Peninsula School District. The total response rate for the survey was 33%.

Table 3.5: Certified and Classified Response Data for Questionnaire

	Certified			Classified		
District	Possible N	Actual N	Response Percentage	Possible N	Actual N	Response Percentage
BSSD	203	103	50%	265	22	8%
LPSD	61	30	49%	15	8	53%
KSD	46	35	76%	48	14	29%
Total	310	168	54%	328	44	13%

3.5.2 Reliability of Instrument

We used Cronbach's Alpha to analyze reliability separately for each Baldrige category for the belief and practice scale. Each category has acceptable internal consistency ($\alpha > .7$) for both the belief and practice scales as shown in Table 3.6.

Table 3.6: Questionnaire Reliability by Category for Belief and Practice Scales

Baldrige Category	Belief Scale Alpha	Practice Scale Alpha
Leadership	0.90	0.90
Knowledge Management	0.90	0.89
Process Management	0.91	0.91
Results	0.88	0.83
Staff Focus	0.91	0.87
Student/Stakeholder/ Market Focus	0.89	0.87
Strategic Planning	0.90	0.87

N = 212

3.5.3 Analysis for Research Questions 1, 2, and 3

Research questions 1, 2, and 3 focus on respondents' perceptions of the importance and existence of the construct of Process Management as part of the Quality Schools Model. Through the categorical analysis, expert review, and field test conducted prior to administration of the questionnaire, I retained 11 items measuring the construct of Process Management on the final questionnaire. I used principal component factor analysis with varimax rotation to identify the dimensionality of the 11 Process Management items from the questionnaire. Using the rotated solution and theory regarding the Baldrige Criterion of Process Management, I examined whether it was possible to group the items into sub-factors. Upon review (see section 4.1) I determined that all the Process Management items only fell into one factor.

Because the hypotheses for these research questions utilize the demographic data of respondents, I identified the groupings in which this demographic data would be analyzed. For example, while the questionnaire provided the options of "4 to 7 years" and "8 to 10 years" for the demographic of "education work experience", these two options could be grouped together for the purpose of analysis in order to create a grouping representing staff who weren't new to education, but weren't mid-career either. I considered the usefulness of various groupings, e.g., 3 years or less of educational experience versus 10 years of less of educational experience, as well as the number of respondents that would result in each of the various grouping options. Table 3.7 shows the grouping of the demographic data for the purpose of data analysis.

Table 3.7: Groupings of Respondents' Demographic Characteristics for Research Questions 1-3

Demographic	Groupings		
Job Classification	Administrators	Teachers	Classified
Years of Education Experience	3 years of less	4-10 years	11 or more years
Years of QSM Experience	3 years of less	More than 3 years	

I used descriptive statistics to determine the perceptions of importance and existence for the Process Management variables. I calculated response frequencies and percentages for importance and existence responses for each possible response.

In order to evaluate the difference between the perceptions of respondents in the demographic groups respective to each hypothesis, I utilized parametric statistical methods. For research questions 1, 2 and 3 the independent variables were the demographic groups, e.g., certified staff and classified staff, and the dependent variables were perceptions of the importance and existence of Process Management as measured by the responses to the questionnaire items. I conducted an independent-samples t-test in order to test the hypotheses comparing two independent variables, e.g., respondents with less than 3 years experience and respondents with more than 3 years experience, to determine whether or not there was a statistically significant difference in the perceptions of the two demographic groups. For hypotheses involving more than two independent

variables, e.g., administrators, teachers, and classified staff, a one-way analysis of variance (ANOVA) was conducted to compare perceptions of these demographic groups. Ad Hoc comparisons were performed to identify which of the groups had statistically significant differences in their means.

For research question 3, a paired-samples t-test was conducted to compare perceptions of the importance of Process Management items to the perceptions of the existence of Process Management items.

3.5.4 Analysis for Research Question 4

Research question 4 focused on assessing the relationships among the organizational quality dimensions as proposed by the Baldrige Education Criteria for Performance Excellence framework. We used structural equation modeling (SEM) to examine the Baldrige framework as a whole to determine if the causal relationships implied by the model structure fit the actual relationships within the data set. SEM is a statistical method used to model causal relationships among latent constructs as reflected by measured variables. The cohort chose to use SEM because we felt that the interrelated nature of the seven Baldrige Criteria do not allow for a unidirectional flow (Schreiber et al., 2006). In this study the latent constructs are the seven Baldrige Criteria and the measured variables are the questionnaire items that reflect each of the constructs.

SEM determines if constructs within a model are exogenous or endogenous. Constructs that influence, but are not influenced by, other constructs are exogenous (Schreiber et al. 2006). Endogenous variables are both influenced by and influence other

constructs (Schreiber, J.B. et al., 2006). Exogenous variables are similar to independent variables, and endogenous variables are similar to dependent variables.

As shown in chapter 2 (Figure 2.1), the Baldrige framework proposes that Process Management is an endogenous variable, affecting, for example, Results, and being affected by Faculty and Staff Focus. SEM allows the hypothesized relationships among latent constructs to be tested.

Several data analysis procedures preceded SEM. The items of the questionnaire represented each of the seven constructs of the Baldrige framework. Each cohort member conducted a factor analysis for his area of study in order to answer the first three research questions. Likewise, we conducted factor analyses for the remaining three Baldrige categories: Strategic Planning; Student, Stakeholder, and Market Focus; and Results. As for research questions 1, 2, and 3, the cohort selected items to be retained as representative of each construct based on the strength of the factor loadings and the cohort's opinion of the item's importance.

Next, using the statistical software AMOS in SPSS 15.0, we conducted a confirmatory factor analysis (CFA) separately for each construct in order to confirm that variables reliably measured the intended construct, and to reduce the variables to a number appropriate for the sample size of 212 respondents. While researchers differ regarding the number of cases (respondents) needed per variable (item), the "rule of 10" is often applied (Garson, 2007), requiring 10 cases for each variable retained in SEM. The confirmatory factor analysis for all seven constructs provided a means of assessing the quality of the variables representing each construct, and making decisions regarding

the variables to be retained for SEM. Finally, the causal relationships postulated within the Baldrige framework were incorporated into a structural model and tested using the AMOS software.

3.6 Interviews

3.6.1 Purpose of the Interviews

Kushman and Barnhardt (1999) wrote that "Community voice captures the essence of what we believe to be the important elements of a productive educational partnership between school and communities in remote Alaska villages" (p. 13). Active solicitation and incorporation of community input is expected in many of the processes within the QSM. Likewise, the Baldrige Criteria contain an expectation of community involvement for education effectiveness. We conducted semi-structured interviews with a cross-section of individuals from two of the school districts to elicit the community perspective related to implementation of the QSM. There were two main objectives for the interviews: 1) To ascertain the degree to which the respondents considered the Quality Schools Model to be important and in existence in their schools; and 2) to do so in a manner that "elaborates, enhances, illustrates, or clarifies," (Greene, 1989, p. 257) the information obtained through the questionnaire.

3.6.2 Interview Participants

Utilizing criterion sampling, staff and community members were selected from the communities served by two of the school districts. "Criterion sampling involves the selection of cases that satisfy an important criterion. This strategy is particularly useful in studying educational programs," (Gall et al., 2007, p. 187). We requested from the

district superintendent and school principals assistance in identifying potential interview participants who were likely to have knowledge of school programs and activities. We conducted a total of fourteen interviews and included individuals serving in one or more of the following roles: community member, parent, elder, school board member, classified staff person, district office administrator, teacher, and principal. Table 3.8 provides demographic information for interview participants.

Table 3.8: Demographic Information for Interview Participants

Stakeholder Group	Site	Years of QSM Experience	Years of Education Experience
Community member	A	6	8
Community member/Retire teacher	A	6	23
School Board Member/Elder	B	7	28
Classified Staff/Elder	C	7	30
Board Member	D	6	20
Teacher	C	6	6
Teacher	E	3	6
Teacher	F	2	2
Teacher	G	3	6
Principal	D	7	22
Principal	H	7	25
District Administrator	I	6	19

Where possible, we conducted interviews in person in the interviewee's community. When that was not possible due to travel limitations, we conducted interviews at a location and time of mutual convenience, such as at a conference or by telephone. The setting and mode (face-to-face or telephone) for each interview was recorded on the interview protocol form.

3.6.3 Interview Questions

Gorden (1992, p.23) states that "for a question to be useful, it must first be logically relevant to the objectives of the interview. However, for it to be relevant is not enough; the question must also be formulated to motivate the respondent to give complete and accurate answers." We used the interview process to bridge the more general education reform criteria of Baldrige in Education and the specific cultural focus that is a strength of the Quality Schools Model of education reform. The second objective for the interview was to collect data that would complement the data collected through the questionnaire. Patton (1987, p. 118) provided a "Matrix of Question Options" that outlined six types of interview questions. Behavior/experience questions address subjects' past, present, or future actions and result in responses in which subject describe activities, decisions, or behaviors that would actually be observable. Opinion/belief questions are aimed at understanding how subjects cognitively structure their reality. They attempt to uncover a subject's world-view of things, and frequently begin with "What is your opinion of..." or "What do you think about..." Frequently, these kinds of questions are confused with the next two types: feeling questions and knowledge

questions. Feeling questions deal with affective, rather than cognitive subjectivity. The subject's emotional responses, i.e., happiness, fear, anxiety, confidence, etc., are what are important. Knowledge questions, on the other hand, seek factual information regarding what the subject knows. The fifth type of question, sensory questions, assess what a subject sees, hears, feels, taste, or smells. Finally, background/demographic questions obtain information about a subject's identifying characteristics and may include age, educational level, annual income, place of residents, etc.

In developing interview questions, the cohort members sought a balance among questions that probed respondents' beliefs about the importance of implementation of the QSM with those that probed the degree to which they saw evidence of the QSM in practice in their district. The former primarily utilized opinion/belief and feeling questions, while the latter employed knowledge and sensory questions. Both experience/behavior questions and background/demographic questions provided researchers with clarifying information about interview participants. Five questions served as the focus for the interviews:

1. What do you know about the QSM?
2. Is the QSM important to you?
3. What is working best with the QSM?
4. What could be improved with the QSM?
5. What recommendations or suggestions do you have for improving the QSM?

3.6.4 Interview Protocol

Eisner (1998, p. 183) warns that "interviews need not – indeed, should not – be formal, questionnaire-oriented encounters." The aim is for the interviewer to put the person at ease, to have some sense of what he or she wants to know, but not to be either rigid or mechanical in method. We selected a semi-structured, open-ended interview format in order to allow follow-up prompts that would help to illicit rich responses, while also reducing the possibility of interviewer variance (Groves et al., 2004, p. 281). Groves et al. (2004) explained that "one of the most effective ways to reduce interviewer variance is to create questions that do not require the interviewers to vary their behavior over respondents. The variation of importance here concerns clarifying questions and probing inadequate answers" (p.281). The following five suggestions were given for standardizing the data collection process (Groves et al., 2004):

1. Interact with the respondent in a way that is professional, task oriented, and that minimizes the potential of respondents to adhere to or infer preferences for the kind of answer that are obtained.
2. Read question exactly as worded.
3. Explain the survey procedures and question-and-answer process to the respondent.
4. Probe non-directly; that is, in a way that does not increase the likelihood of one answer over others.
5. Record answers that respondents give without interpreting, paraphrasing, or inferring what respondents themselves have not said.

The interview protocol specified the questions, the sequence in which they were asked, and guidelines for what the interviewer was to say at the beginning and end of each interview (Gall et al., 2007). Notes and tape recording preserved information collected during the interviews.

3.6.5 Analysis of Interview Data

The analysis of interview data occurred separately and after the completion of all interviews. Using the recordings of the interviews, we transcribed interview responses verbatim to word-processed documents and these transcripts served as the data set for analysis. Throughout this process, we applied several caveats from the literature regarding the coding process. Lincoln and Guba (1985) advise that categories should be viewed as temporary during the beginning stages of coding. As coding continues, a researcher should "devise rules that describe category properties and that can, ultimately, be used to justify the inclusion of each data bit that remains assigned to the category as well as to provide a basis for later tests of replicability" (p. 347). Tesch (1990) stresses that the objective of a qualitative analysis is not merely to make the data smaller or manageable, but to interpret and organize it for meaning.

I first read the interview data without a set of parameters so that I could look for patterns and connections to the research questions. As I read each interview transcript for the second time, I employed an inductive approach to coding whereby labels or codes were generated in response to the data, rather than to predetermined categories (Miles and Huberman, 1994). Codes were created and assigned to units of data using both a descriptive and interpretive approach. Descriptive coding requires little interpretation of

the data and focuses on key words or phrases as the basis for creating and assigning codes. Interpretive coding focuses more on the underlying meaning or concept represented by the interview data. For example, if a teacher says, "The Quality Schools Model is a big change," a descriptive code of "change for staff" could be assigned. The same code could be applied interpretively to a response of "Sharing the grading with other teachers is a difficult thing for high school teachers." Data were analyzed sentence-by-sentence or in a several sentence chunk. I kept a list of these initial codes adding to it after the coding of each interview. After coding the interviews once, I reviewed the list of codes and created pattern codes that grouped the codes by theme or construct (Miles and Huberman, 1994). I reread and recoded each interview using the pattern codes creating, eliminating, or combining codes as appropriate and assigning more than one code to a unit of analysis if necessary. This process continued until the list of codes had stabilized and I determined that all relevant data had been coded. As explained by Lincoln and Guba (1985), "Coding and recoding are over when the analysis itself appears to have run its course – when all of the incidents can be readily classified, categories are 'saturated,' and sufficient numbers of 'regularities' emerge" (in Miles and Huberman, 1994).

3.8 Triangulation of Data

Various terms are used in the literature to describe the practice of considering multiple sources of data in order to accomplish a fuller understanding of the phenomena studied (Bogden and Biklen, 2003). The most frequently-used term, triangulation, refers to "cross-validation among data sources, data collection strategies, time periods, and theoretical schemes," (McMillan and Schumacher, 2001, p. 478). Eisner (1998) proposes

the term structural corroboration for identifying "the means through which multiple types of data are related to each other to support or contradict the interpretation and evaluation of a state of affairs," (p. 110).

The purpose of collecting data through a questionnaire and interviews was to describe the implementation of the QSM in a way that reflected the stakeholder-inclusive design of the QSM framework, and the comprehensive consideration of quality as defined by the Baldrige Criteria. Data from the questionnaire was analyzed in order to answer the first four research questions regarding perceived importance and existence of process management. Interview data were considered in order to determine the extent to which community members perceived process management to be important and in existence in their schools and to amplify questionnaire responses from school staff. Findings and, particularly, recommendations reflect consideration and comparison of all data in order to "seek a confluence of evidence and feel confident about observations, interpretations, and conclusions" (Eisner, 1998, p.110)

3.9 Summary

This chapter detailed the research design and methodology for the study in order to answer four research questions with ten supporting alternative hypotheses. A mixed-method approach considered quantitative and qualitative concurrently through the analysis of questionnaire and interview data. Chapter 4 presents the results of the quantitative and qualitative data analysis.

CHAPTER 4: RESULTS

Introduction

This chapter presents the quantitative and qualitative results of the study. Quantitative results obtained by an analysis of the questionnaire data are presented first and organized in terms of the four research questions and related hypotheses. Qualitative results from interviews with staff and community members are then presented and organized by the major themes that emerged from the data.

4.1 Quantitative Results

4.1.1 Tests of Assumptions for Statistical Tests for Research Questions One, Two, Three and Four

I used parametric statistics to answer research questions one, two, and three. These questions focused on Process Management and used data from responses to both the importance and practice scales for the eleven Process Management items on the questionnaire. The cohort used structural equation modeling to address research question four which examined the relationships among the seven Baldrige criteria as represented by questionnaire items measuring each of the criteria. We only used responses to the practice scale in the analysis for research question 4. Table 4.1 shows the questionnaire items and the Baldrige criteria that they represent.

For parametric statistical techniques, standard research procedure is to assume normal distribution of variables and for structural equation modeling, multivariate normal distribution of variables is assumed. The bivariate sample statistics of skewness and kurtosis are used to assess normality for both parametric statistics and SEM. Skewness is a measure of the asymmetry of a distribution, while kurtosis is an index of peakedness or

flatness of a distribution. In SPSS 15.0, a perfectly normal distribution would have a skewness and kurtosis value of 0.

Table 4.1: Assignment of Questionnaire Items to Factors

Factor	Survey Questions
Leadership	2, 8, 31, 32, 39, 42, 47, 48, 49, 63, 66, 72
Strategic Planning	16, 24, 34, 38, 45, 53, 54, 56
Knowledge Management	7, 20, 22, 25, 27, 29, 40, 44, 52, 57, 59,
Process Management	6,10, 12, 18, 21, 30, 33, 41, 58, 61, 62
Staff Focus	3, 4, 9, 14, 46, 50, 51, 55, 60, 65, 68
Student, Stakeholder Market Focus	1, 11, 13, 15, 23, 35, 36, 37, 67, 71
Results	5, 17, 19, 26, 28, 43, 64, 69, 70

As a general rule of thumb, "discrete data may be assumed to be normal if skew and kurtosis is within the range of +/- 1.0 (Schumacker and Lomax, 1996). Researchers (Kline, 2004; Tabachnick and Fidell, 2007) generally agree that a skewness value greater than 3.0 represents a severe departure from normality. There is less agreement in the literature regarding kurtosis values and departure from normality though a general guideline is that kurtosis values +/- 2.0 are acceptable (De Carlo, 1997) though a few authors recommend the more lenient +/- 3 range. Tabachnick and Fidel note that with a reasonably large sample e.g., more than 200 cases, "a variable with statistically significant skewness often does not deviate enough from normality to make a substantive

difference in the analysis" and that risks associated with significant kurtosis are also reduced with a sample size greater than 200 (p. 80).

A second important consideration to make prior to conducting SEM is the screening of variables for outliers, those cases with values markedly above or below the majority of other cases. As a general guide, scores that are more than three standard deviations from the mean are considered outliers (Kline, 2004).

In order to determine the appropriateness of using parametric statistical techniques for research questions one, two, and three, scores from the importance and practice scales for the Process Management items were assessed for normality and the presence of outliers using SPSS 15.0. For the importance data, all eleven variables had a negative skew toward the "agree" and "strongly agree" response options, the greatest value of which was -1.144 for item 41. Item 30 had the greatest kurtosis value which was 1.804. Both skewness and kurtosis values were within acceptable ranges. An analysis of boxplots showed that ten of the eleven items had an outlier score. Comparison of the original and 5% trimmed means showed that the greatest impact of an outlier on mean score was a difference of .07 for item 58. For the data from the practice scale, eight of the eleven variables had a slight negative skew all of which were less than + / - 1.0. There were no outliers for any of the process management variables.

In order to determine the appropriateness of the use of structural equation modeling for research question four, we conducted tests for normality and the presence of outliers for the importance scale data for all variables that represented the other six Baldrige components. For Staff Focus, ten of the eleven variables had a slight negative

skew toward "frequently" and "always," the greatest value of which was -.347 for item 65. Kurtosis values, likewise, were well within acceptable ranges with item 4 having the greatest value of -.906. No items had outliers for the importance scale data. Eight of the eleven Knowledge Management variables had a slight negative skew with item 29 having the highest value (-1.095). Items 7, 22, 27, and 29 had outlier scores. Comparison for these items of the 5% trimmed mean to the original mean showed very small percent differences: .01 for item 7; .04 for item 22; .04 for item 27; and .09 for item 29. No outliers were removed due to their lack of effect on the mean scores.

For the Strategic Planning items, the skewness value did not exceed 1.0 for any variable, though six of the eight had a slight negative skew. Items 24 and 45 had outliers with differences between the 5% trimmed mean and the original mean of .04 and .05. All skew and kurtosis values for the items of Student, Stakeholder, and Market Focus were within the range of +/- 1.0. Item 15 had an outlier and a difference of only .04 between the 5% trimmed mean and the original mean. For Leadership, eleven of twelve variables had a slight negative skew the value of which did not exceed +/- 1.0 for any variable. I found outlier scores for seven variables (items 2, 8, 31, 39, 42, 63, and 72). The greatest difference between the .5% trimmed mean and the original mean for these variables was .05. No outliers were removed due to their lack of effect on the mean scores. For Results, all skew values for the variables were within the + / - 1.0. Five of the nine variable had a slight positive skew toward the "disagree" and "strongly disagree" responses options. Item 5 had two outlier scores and a difference between the 5% trimmed mean and the

original mean of only .04. Item 64 had one outlier score and a difference between the two means of .05.

None of the variables for any of the seven Baldrige factors showed evidence of non-normality (skewness > 3.0; kurtosis > 2.0) nor was the effect of outlier scores on means significant. A total of 72 variables were kept for possible inclusion in the structural equation model.

4.2 Results of Principal Component and Confirmatory Factor Analysis

Using SPSS Version 15.0, I conducted a principal component analysis with Varimax (orthogonal) rotation for both the "importance" and "practice" scales. The objective was to identify the dimensionality of the 11 Process Management items from the questionnaire. For the importance scale data, principal components analysis revealed the presence of eleven components with eigenvalues exceeding 1. However, I only ruled one of the components as significant with a total of 54.4% of the variance for all of the variables in the belief scale. This rotated solution yielded all variables loading at .6 or higher on one factor. Figure 4.1 illustrates this concentration of variables on one component.

I conducted the same process for the practice scale data. Again eleven components had eigenvalues exceeding 1. However, I only ruled one of the components as significant with a total of 54.4% of the variance for all of the variables in the practice scale data. This procedure yielded all eleven variables loading at .6 or higher on one component. Figure 4.2 illustrates this concentration of variables on one component. The rotated solution for both importance and practice data are shown in Table 4.2. I then

performed a confirmatory factor analysis for the eleven Process Management items to validate that they represented this Baldrige criterion. Table 4.3 details these results. Finally, Table 4.4 shows the statements for each item.

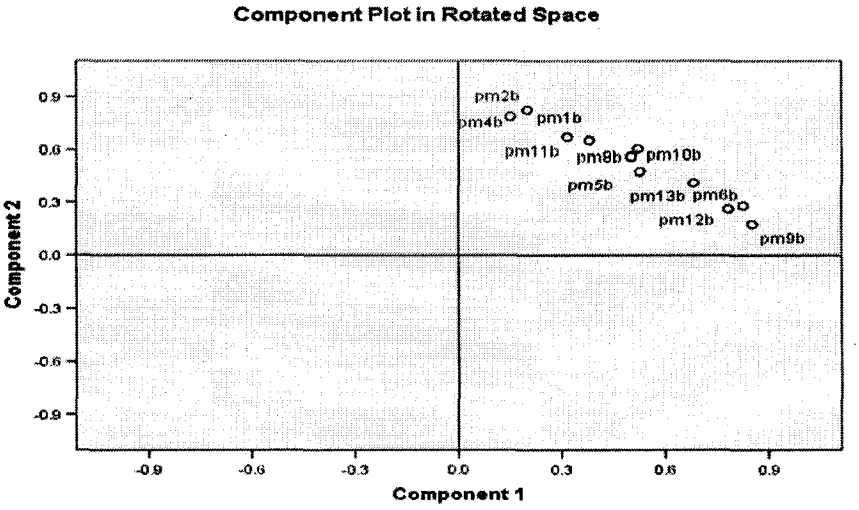

Figure 4.1: Process management factor loadings for importance items.

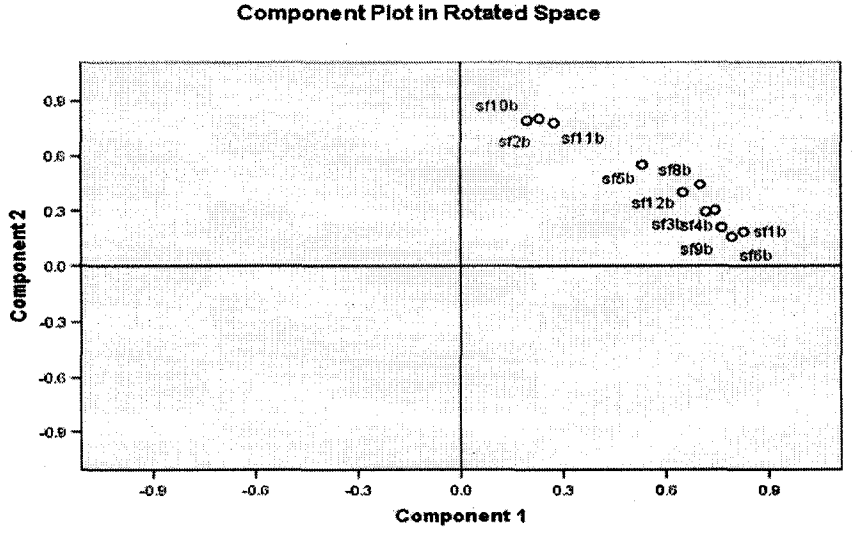

Figure 4.2: Process management factor loadings for practice items.

Table 4.2: Summary of Items and Factor Loading for Varimax Rotated Solution of Principal Components for Process Management Items for Importance and Practice

Item	Importance Scale	Practice Scale
	Factor Loading	Factor Loading
	Factor 1	Factor 1
6	0.697	0.673
10	0.658	0.664
12	0.719	0.718
18	0.729	0.820
21	0.710	0.635
30	0.798	0.779
33	0.777	0.657
41	0.753	0.753
58	0.744	0.771
61	0.732	0.775
62	0.788	0.754
Eigenvalue	5.987	5.854
% of Total Variance	54.4%	53.2%

Table 4.3: Standardized Regression Weights for Eleven Process Management Items

		Belief Scale Estimate	**Practice Scale Estimate**
pm10p	<---	.790	.763
pm13p	<---	.755	.609
pm9p	<---	.664	.712
pm2p	<---	.669	.677
pm1p	<---	.702	.816
pm4p	<---	.585	.623
pm5p	<---	.679	.601
pm6p	<---	.716	.748
pm12p	<---	.727	.688
pm8p	<---	.752	.728
pm11p	<---	.645	.640

Table 4.4: Process Management Items

Item Number	
6	Our district has a set way to use information from multiple sources to achieve better performance.
10	Before we develop anything new, we assure that it will be of a higher quality than what we currently are doing.
12	Our district has steps in place to assure that instructional services are of high quality.
18	Our school district uses information about student learning needs to design new instructional services.
21	Our district has a set way to gather information on our students' needs.
30	Our district regularly reviews and analyzes student learning and then creates processes that improves student success.
33	Students and staff provide input for key non-instructional services.

Table 4.4: continued

41	Our district will change or redesign programs and offerings in order to improve student achievement.
58	Our district uses information gathered from our students to improve instructional services.
61	Our district uses information from multiple sources when designing non-instructional services.
62	Our non-instructional services have performance measures that are analyzed to improve these services.

4.3 Research Question Results

4.3.1 Research Question 1

I stated research question 1 as follows: To what extent do administrators, staff, and community members perceive Process Management to be important as a part of the Quality Schools Model in their schools? Three alternative hypotheses measured the variation in perceptions of importance attributable to the demographic characteristics of respondents. I summarized these results in Table 4.5

In the first hypothesis for research question 1 I predicted that administrators, teachers, and classified staff would differ in the extent to which they perceived Process Management variables to be important in their schools as measured by the questionnaire. For Process Management the mean perception of importance for administrators was 3.56 ($n = 36$), for teachers was 3.40 ($n = 132$), and for classified staff was 3.42 ($n = 44$). These means and standard deviations for the three groups are detailed in Table 4.6.

Table 4.5: Means and Standard Deviation for Process Management Importance Items

N=212		Strongly disagree	Disagree		Agree		Strongly agree			
variable	N	%	N	%	N	%	N	%	Mean	SD
6	2	0.90	11	5.20	108	50.90	91	42.90	3.36	0.63
10	2	0.90	11	5.20	70	33.00	129	60.80	3.54	0.64
12	1	0.50	9	4.20	59	27.80	143	67.50	3.62	0.59
18	1	0.50	9	4.20	80	37.70	122	57.50	3.52	0.60
21	1	0.50	9	4.20	93	43.90	109	51.40	3.46	0.60
30	2	0.90	5	2.40	81	38.20	124	58.50	3.54	0.60
33	3	1.40	18	8.50	116	54.70	75	35.40	3.24	0.66
41	1	0.50	7	3.30	74	34.90	130	61.30	3.57	0.58
58	3	1.40	14	6.60	96	45.30	99	46.70	3.37	0.67
61	0	0.00	17	8.00	121	57.10	74	34.90	3.27	0.60
62	4	1.90	14	6.60	124	58.50	70	33.00	3.23	0.65
total	1.82	.085	11.27	5.31	106	43.82	106	49.99	3.43	0.62

I conducted a one-way analysis of variance to explore the impact of job classification on perceptions of the importance of the Process Management factor. There were no statistically significant differences at the $p < .05$ level between the perceptions of administrators, teachers, and classified staff for the Process Management variables. These results are detailed in Table 4.6.

Table 4.6: Means and Standard Deviation for Administrators, Teachers, and Classified Staff

Job classification		Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					lower bound	upper bound
Administrator	Teacher	.15817	.08574	.158	-.0442	.3606
	Classified	.13200	.10248	.403	-.1099	.3739
Teacher	Administrator	-.15817	.08574	.158	-.3606	.0442
	Classified	-.02617	.07938	.942	-.2135	.1612
Classified	Administrator	-.13200	.10248	.403	-.3739	.1099
	Teacher	.02617	.07938	.942	-.1612	.2135

In the second hypothesis for research question 1 I predicted that the perceptions of the importance of Process Management would differ based on respondents' years of educational work experience. I divided the respondents into three groups: three years or less of experience; four to ten years of experience; and ten or more years of experience. The mean perception of importance for respondents with 3 years or less was 3.43 (n = 44), for respondents with four to ten years was 3.51 (n = 67), and for respondents with more than 11 years was 3.38 (n = 101).

I conducted a one-way analysis of variance to explore the impact of years of educational work experience on perceptions of the importance of Process Management.

There were no statistically significant differences at the $p < .05$ level among educational experience groups for the Process Management variables. Table 4.7 details these results.

Table 4.7: One-Way Analyses of Variance for Effects of Classification on Eleven Process Management Dependent Variables for Importance Scale

Years of Experience		Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					lower bound	upper bound
3 yrs or less	4 to 10 yrs	-.08320	.08851	.616	-.2921	.1257
	11 or > yrs	.04668	.08239	.838	-.1478	.2412
4 to 10 years	3 yrs or less	.08320	.08851	.616	-.1257	.2921
	11 or > yrs	.12988	.07187	.170	-.0398	.2995
11 or > yrs	3 yrs or less	-.04668	.08239	.838	-.2412	.1478
	4 to 10 yrs	-.12988	.07187	.170	-.2995	.0398

In the third hypothesis for research question 1 I predicted that the perceptions of the importance of Process Management factors would differ based on the number of years that respondents had been involved with the Quality Schools Model. I divided the respondents into two groups: three years or less of experience with the QSM, and more than three years of experience with the QSM. The mean perception of importance for respondents with three years or less was 3.44 ($n = 94$), and for respondents with more than three years it was 3.46 ($n = 118$). I conducted an independent samples t test to

compare the perception scores of the two QSM experience groups. There were no significant differences between the two groups. Table 4.8 provides t test results for Process Management.

Table 4.8: Perception Differences between QSM experience groups for Process Management Dependent Variables for Importance Scale

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	.198	1	.198	.948	.331
Within Groups	43.968	210	.209		
Total	44.166	211			

4.3.2 Research Question 2

I stated research question 2 as follows: To what extent do administrators, staff, and community members perceive Process Management to be in practice as a part of the Quality Schools Model in their schools? Table 4.9 summarizes the responses of all respondents to the Process Management variables of the practice scale. Three hypotheses addressed the relationships between the perceptions of practice that could be attributed to the demographic characteristics of respondents.

Table 4.9: Means and Standard Deviation for Process Management Practice Items

N=212

		strongly disagree		disagree		Agree		strongly agree		M	SD
Variable	N	%	n	%	n	%	n	%			
6	5	2.4	66	31.1	98	46.2	43	20.3	2.84	0.77
10	6	2.8	68	32.1	91	42.9	47	22.2	2.84	0.8
12	5	2.4	56	26.4	105	49.5	46	21.7	2.91	0.75
18	9	4.2	69	32.5	88	41.5	46	21.7	2.81	0.82
21	4	1.9	56	26.4	98	46.2	54	25.5	2.95	0.77
30	6	2.8	57	26.9	97	45.8	52	24.5	2.92	0.79
33	23	10.8	80	37.7	90	42.5	19	9	2.5	0.81
41	5	2.4	56	26.4	90	42.5	61	28.8	2.98	0.81
58	19	9	88	41.5	81	38.2	24	11.3	2.52	0.81
61	14	6.6	75	35.4	92	43.4	31	14.6	2.66	0.81
62	25	11.8	84	39.6	81	38.2	22	10.4	2.47	.834

In the first hypothesis for research question 2 I predicted that administrators, teachers, and classified staff would differ in the extent to which they perceived Process Management to be in practice in their schools as measured by the questionnaire. The mean perception of practice for administrators was 3.08 (n = 36), for teachers was 2.66 (n = 132), and for classified staff was 2.80 (n = 44).

I conducted a one-way analysis of variance (ANOVA) to explore the impact of job classification on perceptions of the practice of Process Management. There were statistically significant differences at the $p < .05$ level between the perceptions of administrators and teachers but not for the other comparisons. Table 4.10 shows these results.

Table 4.10: One-Way Analyses of Variance for Effects of Classification on Process Management Dependent Variables for Practice Scale

Job classification		Mean Difference	Std. Error	Significance
Administrator	Teacher	.41437	.10575	< .001
	Classified	.27456	.12640	.078
Teacher	Administrator	-.41437*	.10575	< .001
	Classified	-.13981	.09791	.328
Classified	Administrator	-.27456	.12640	.078
	Teacher	.13981	.09791	.328

In the second hypothesis for research question 2 I predicted that the perceptions of the practice of Process Management would differ based on respondents' years of educational work experience. I divided the respondents into three groups: three years or less of experience; four to ten years of experience; and ten or more years of experience. The mean perception of importance for respondents with 3 years or less was 2.7 ($n = 44$), for respondents with four to ten years was 2.77 ($n = 67$), and for respondents with more

than 11 years was 2.78 (n = 101). I conducted a one-way analysis of variance to explore the impact of years of educational work experience on perceptions of the importance of Process Management. There were no statistically significant differences at the $p < .05$ level between the three educational experience groups as shown in Table 4.11.

Table 4.11: One-Way Analyses of Variance for Effects of Classification on Process Management Dependent Variables for Practice Scale

Years of Education Experience		Mean Difference	Std. Error	Significance
3yrs or less	4 to 10 yrs	-.07028	.11297	.808
	11 or > yrs	-.08537	.10516	.696
4 to 10	3 yrs or less	.07028	.11297	.808
	11 or > yrs	-.01509	.09173	.985
11 or > yrs	3 yrs or less	.08537	.10516	.696
	4 to 10 yrs	.01509	.09173	.985

In the third hypothesis for research question 2 I predicted that the perceptions of the practice of Process Management would differ based on the number of years that respondents had been involved with the Quality Schools Model. I divided the respondents into two groups: three years or less of experience with the QSM, and more than three years of experience with the QSM. The mean perception of practice for respondents with

three years or less was 2.7 (n = 94), and for respondents with more than three years was 2.8 (n = 118). I conducted an independent samples t test to compare the perception scores of the two QSM experience groups. There were no significant differences between the two groups. Table 4.12 provides these t test results.

Table 4.12: Perception Differences between QSM Experience Groups for Process Management Dependent Variables for Practice Scale

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	.083	1	.083	.245	.621
Within Groups	70.981	210	.338		
Total	71.064	211			

4.3.3 Research Question 3

Research question 3 asked: Are there statistically significant differences between the extent to which respondents perceive Process Management items to be important and the extent to which they perceive Process Management items to be in practice as part of the Quality Schools Model in their schools? I conducted a paired-samples t test to compare the importance perception scores to the practice perception scores. There were significant differences between respondents' perceptions of the importance and the

practice of Process Management variables. In all instances the mean score was higher for the importance scale than for the practice scale. Table 4.13 provides t test results for Process Management.

Table 4.13: Perception Differences between Importance and Practice for Process Management Variables

	Sum of Squares	df	Mean Square	F	Significance	ETA Squared
Between Groups	16.972	21	.808	2.839	<.05	0.593
Within Groups	54.092	190	.285			
Total	71.064	211				

In the first hypothesis for research question 3 I predicted that the difference between perceptions of the importance and the practice of Process Management would vary for administrators, teachers, and classified staff. I conducted a one-way analysis of variance (ANOVA) to explore the impact of job classification on the differences between perceptions of importance and practice. All comparisons between administrators, teachers, and classified staff showed statistically significant variation at the $p < .05$ level for the differences between the perceptions of importance of the Process Management variables as shown in Table 4.14.

Table 4.14: One-Way Analyses of Variance for Effects of Classification on the Differences between Importance and Practice for Eleven Process Management Variables

Job Classification	N	Correlation	Significance	ETA Squared
Administrator	36	.487	.003	0.571
Teacher	132	.453	<.05	0.650
Classified	44	.400	.007	0.480

In the second hypothesis for research question 3 I predicted that the difference between the importance and the practice of Process Management would vary based on respondents' years of educational work experience. I conducted a one-way analysis of variance (ANOVA) to explore the impact of respondents' years of educational experience on the differences between perceptions of importance and practice. There was statistical significance of variation at the $p < .05$ level between respondents with three years or less of experience, four – ten years of experience, or ten years or more of experience as shown in Table 4.15. Variables of significance are in bold. The listed ETA Squared statistic confirms this level of significance.

Table 4.15: One-Way Analyses of Variance for Effects of Years of Experience of Process Management Variables

Yrs of Education Experience	N	Correlation	Significance	ETA Squared
3 yrs of less	44	.301	.047	0.585
4 to 10 years	67	.479	<.05	0.704
11 or more years	101	.505	<.05	0.528

In the third hypothesis for research question 3 I predicted that the difference between the perceptions of the importance and practice of Process Management would vary based on the number of years that respondents had been involved with the Quality Schools Model. I divided the respondents into two groups: three years or less of experience with the QSM, and more than three years of experience with the QSM. I conducted an independent samples t test to compare the differences between importance and practice scores for the two QSM experience groups. There was a significant difference between the two groups as shown in Table 4.16.

Table 4.16: Perception Differences between the Importance and Practice for QSM Experience Groups for Process Management

QSM Experience 2 levels	N	Correlation	Significance	ETA Squared
3 years or less	101	.489	<.05	0.640
4 years or more	111	.427	<.05	0.547

4.4 Analysis for Research Question Four

4.4.1 Research Question Four and Hypotheses

Research question four sought to discover the relationships among the Baldrige in Education Criteria. The cohort began this exercise with the Baldrige in Education theoretical model as a starting point. The hypothesis for this research question is that Process Management has either a direct or indirect effect on all other Baldrige criteria as shown in the Baldrige theoretical model. While research questions one, two and three are unique to my work; research question four was shared by the four members of the cohort who all had an interest in the overall structural model for the gathered data.

4.4.2 Tests for Assumptions

Based on theory and previous testing of the questionnaire design, we assigned each questionnaire item to one of the seven latent variables that are descriptive of the Baldrige in Education theoretical model (Leadership, Strategic Planning, Process Management, Staff Focus, Knowledge Management, Student Stakeholder and Market

Focus, and Results). The assignment of variables to the latent factors is shown earlier in this chapter in Table 4.1.

We assessed all indicator variables for each of the latent factors for univariate normality and the presence of outliers. Because the tests for assumptions for the Process Management variables were described earlier in relationship to research questions one through three, the description in this section is focused on the other variables necessary to create the structural model. The results of the assumptions tests for the remaining variables from the questionnaire were as follows: For the Staff Focus factor, ten of the eleven variables had a slight negative skew toward "agree" and "strongly agree" the value of which did not exceed .09 for any variable. No items had outliers. For the factor of Strategic Planning, the skewness value did not exceed 1.0 for any variable, though six of the eight had a slight negative skew. Items 24 and 45 had outliers with differences between the 5% trimmed mean and the original mean of .04 and .05 respectively. All skew and kurtosis values for the factor of Student, Stakeholder, and Market Focus were within the range of +/- 1.0. Item 15 had an outlier and a difference of only .04 between the 5% trimmed mean and the original mean. Eight of the eleven Knowledge Management variables had a slight negative skew with item 29 having the highest value (-1.095). Items 7, 22, 27, and 29 had outlier scores. Comparison for these items of the 5% trimmed mean to the original mean showed very small percent differences: .01 for item 7; .04 for item 22; .04 for item 27; and .09 for item 29. No outliers were removed due to their lack of effect on the mean scores. For the factor of Leadership, eleven of twelve variables had a slight negative skew, the value of which did not exceed +/- 1.0 for any

variable. Outlier scores were found for seven variables (items 2, 8, 31, 39, 42, 63, and 72). The greatest difference between the .5% trimmed mean and the original mean for these variables was .05. No outliers were removed due to their lack of effect on the mean scores. For results, all skew values for the variables were within the + / - 1.0. Five of the nine variable had a slight positive skew toward the "disagree" and "strongly disagree" responses options. Item 5 had two outlier scores and a difference between the 5% trimmed mean and the original mean of only .04. Item 64 had one outlier score and a difference between the two means of .05. None of the variables showed evidence of non-normality (skewness > 3.0; kurtosis > 2.0) nor was the effect of outlier scores on means significant. We kept a total of 72 variables for possible inclusion in the CFA.

In addition to univariate normality, both confirmatory factor analysis and structural equation modeling assume multivariate normality. Bryant and Yarnold (1995) said, "This means that besides assuming each observed indicator is normally distributed, all linear combinations of these indicators are also assumed to be normally distributed. Violations of multivariate normality can distort goodness-of-fit indexes and invalidate the conclusions drawn from statistical tests" (p116). We used the Mahalanobis distance test to check for multivariate normality where $\chi 2$ for each variable to be included is compared against a table of values. Tabachnick and Fidell (2007) provided the table of values; for 72 variables the critical value of $\chi 2$ is 112.317 (p. 949). They recommend a conservative significance value, $p < .001$. All of the items from the practice scale from the Quality Schools Model Questionnaire had acceptable $\chi 2$ values when checked for multivariate normality, so this assumption was also met.

4.4.3 The Hypothesized Model and Confirmatory Factor Analysis

We hypothesized a seven-factor model based on the Baldrige in Education measurement constructs where all seven factors would covary, shown by recursive arrows. While our initial choice as a research cohort was to include all variables in the measurement model, that number of parameters would have led to an inadmissible solution based on the number of cases in our data set. Schreiber et al. (2006) advised,

> The validity of the final results of the structural model is dependent on capturing and establishing the reliability of the underlying constructs. The power of SEM is seen most fully when multiple indicators for each latent variable are first tested through CFA to establish the conceptual soundness of latent variables used in the final structural model. (p. 335)

Working as a cohort and based on our understanding of theory and the related research, we reduced the number of variables from the questionnaire to 55 from 72. Table 4.17 shows the variables retained for each factor. Next we reran the CFAs for each individual factor to obtain information about the suitability of each variable for inclusion in the QSM measurement and structural models. The results of the 7 individual factor CFAs are in Appendix F.

Table 4.17 Questionnaire Items Evaluated for QSM Structural Model

Factor	Survey questions
Leadership	8, 39, 42, 47, 49, 31, 63, 66, 72
Strategic Planning	16, 34, 38, 45, 53, 54, 56
Knowledge Management	7, 20, 22, 25, 40, 52, 57, 59
Process Management	6,10, 12, 18, 21, 41, 58, 61
Staff Focus	4, 9, 14, 50, 51, 55, 65, 68
Student, Stakeholder, and Market Focus	1, 13, 15, 23, 35, 36, 37, 67
Results	5, 19, 26, 43, 64, 69, 70

We examined the CFA results to trim the number of variables down to 28 observed variables for use in achieving an acceptable fit model, following the advice of Bryant and Yarnold (1995),

> In deciding which factor loadings to include in a CFA model, researchers seek to develop parsimonious models in which individual items load on as few factors as necessary to reasonably fit the data. In this way, they balance their desire to explain variance in subject responses with their desire for conceptual parsimony. (p. 115)

Both Tabachnick and Fidell (2007, p. 710) and Garson (2007) provide guidance to determine the minimum number of variables that may be retained to create a measurement model. We retained four variables with the highest standardized regression weights and squared multiple regression scores for each factor. Cronbach's alpha for the

four measurement variables within each latent variable are shown in Table 4.18. All of the alpha scores were > .70, the commonly accepted minimum for reliability of a scale.

Table 4.18 Cronbach's Alpha for Variable Subsets used for QSM CFA

Factor	*Cronbach's Alpha*
Leadership	***.85***
Strategic Planning	***.80***
Knowledge Management	***.82***
Process Management	***.84***
Staff Focus	***.77***
Student, Stakeholder, and Market Focus	***.79***
Results	***.75***

The second-order CFA model for the QSM data followed model conventions with ovals representing latent variables and rectangles representing the measured variables. The seven first-order latent endogenous variables fully explain the second-order latent exogenous variable of Baldrige in Education using the Quality Schools Model questionnaire items from the practice scale. In the CFA, the latent variables were uncorrelated to free some parameters, shown by the change from curved lines to straight directional lines. J. Schreiber et al. called this process of model fitting in CFA and SEM "iterative processes by which modifications are indicated in the initial results, and parameter constraints altered to improve the fit of the model" (p. 335). The second-order CFA measurement model for the QSM data is recursive with 28 observed and 43 unobserved variables. There are 36 exogenous variables and 35 endogenous variables, shown in Figure 4.3.

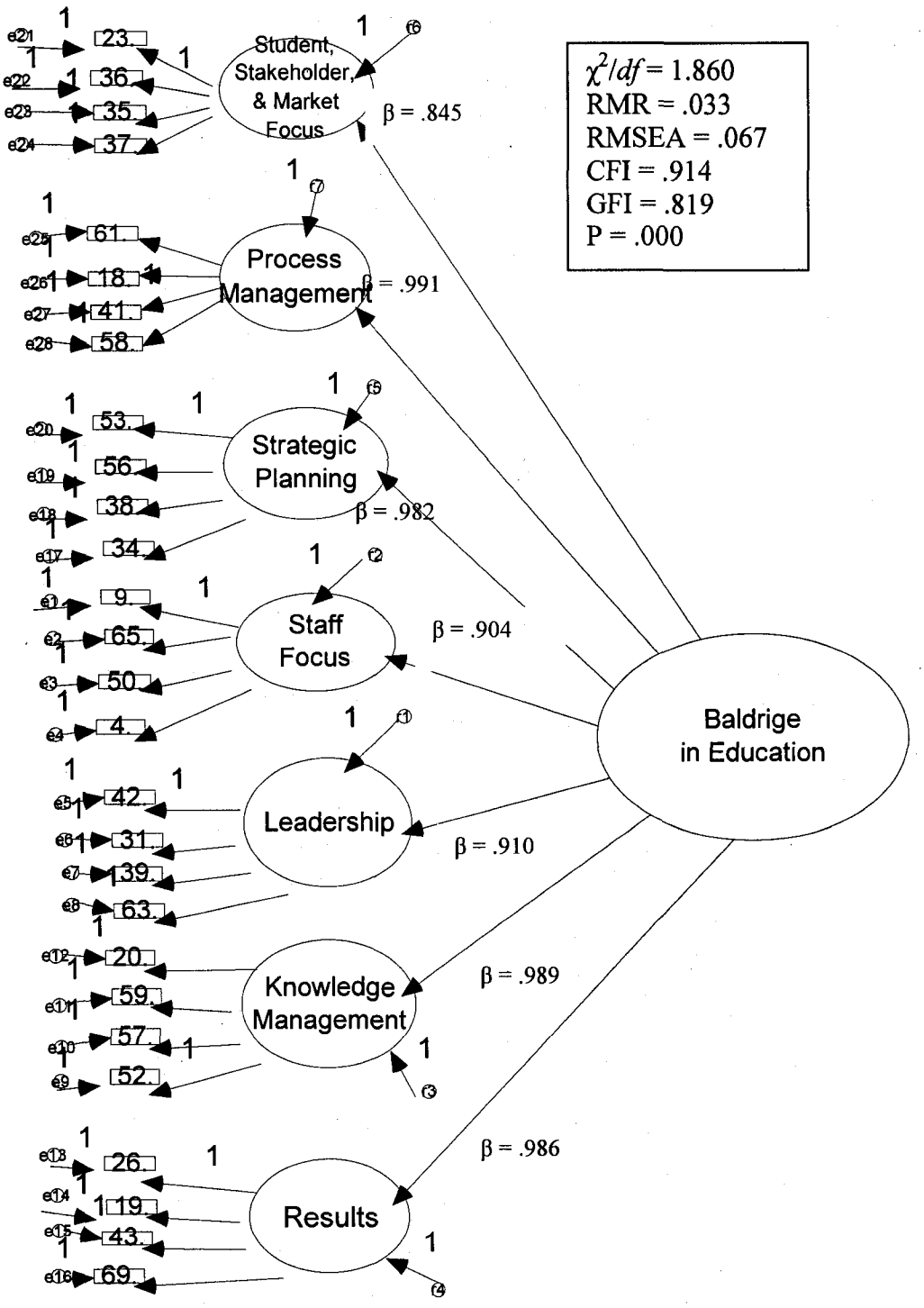

Figure 4.3 Second-Order CFA for Quality Schools Model Practice Scale

Table 4.19 shows the un-standardized and standardized regression estimates and goodness of fit statistics for the modified CFA model of the QSM data.

Table 4.19 Maximum-Likelihood Parameter Estimates of the Quality Schools Model CFA

			B	*SE*	*p*	β
Student, Stakeholder, and Market Focus	<---	Baldrige in Education	.857	2370.420	***	.845
Process Management	<---	Baldrige in Education	.868	2402.413	***	.991
Strategic Planning	<---	Baldrige in Education	.888	2457.200	***	.982
Staff Focus	<---	Baldrige in Education	.815	2253.672	***	.904
Leadership	<---	Baldrige in Education	.880	2433.504	***	.910
Knowledge Management	<---	Baldrige in Education	.898	2485.084	***	.989
Results	<---	Baldrige in Education	.679	1879.572	***	.986
61	<---	Process Management	1.000		***	.700
18	<---	Process Management	1.156	.106	***	.792
41	<---	Process Management	1.033	.103	***	.723
58	<---	Process Management	1.106	.104	***	.769
4	<---	Staff Focus	.877	.112	***	.597
50	<---	Staff Focus	1.015	.115	***	.689
65	<---	Staff Focus	1.047	.113	***	.726
34	<---	Strategic Planning	.805	.086	***	.638
63	<---	Leadership	.956	.084	***	.759
59	<---	Knowledge Management	.916	.090	***	.687
23	<---	Student, Stakeholder, and Market Focus	.886	.102		.646
69	<---	Results	1.109	.163		.562
43	<---	Results	1.442	.175		.746
19	<---	Results	1.388	.169	***	.747
57	<---	Knowledge Management	1.127	.097	***	.770
20	<---	Knowledge Management	1.010	.096	***	.712
39	<---	Leadership	.978	.083	***	.779
31	<---	Leadership	1.037	.090		.772
42	<---	Leadership	1.000			.771
9	<---	Staff Focus	1.000			.681
53	<---	Strategic Planning	1.000		***	.756
38	<---	Strategic Planning	.981	.093	***	.716

Table 4.19: continued

56	<--- Strategic Planning	1.034	.098	***	.709
37	<--- Student, Stakeholder, and Market Focus	.876	.085	***	.724
35	<--- Student, Stakeholder, and Market Focus	.867	.088	***	.696
36	<--- Student, Stakeholder, and Market Focus	1.000		***	.766
26	<--- Results	1.000		***	.566
52	<--- Knowledge Management	1.000		***	.750

*** Significant probability at .01

Squared multiple correlation values are shown in Table 4.20. All indicator variables measured the corresponding factors moderately to very well with small to moderate covariance.

Table 4.20 Squared Multiple Correlations for the Second-Order Quality Schools Model CFA

Variable	R^2
Strategic Planning	.963
Student, Stakeholder, and Market Focus	.714
Staff Focus	.818
Knowledge Management	.979
Process Management	.983
Results	.972
26	.320
19	.558
52	.562
9	.464
34	.407
38	.513
56	.503
53	.571
23	.417
36	.587

Table 4.20: continued

65	.527
58	.591
41	.523
43	.557
69	.316
20	.507
39	.606
42	.594
63	.576
18	.627
61	.490
57	.593
59	.472
31	.595
37	.524
50	.475
4	.356
35	.484

4.4.4 Fitting the Structural Model

After determining which measurement variables to include for each of the seven assumed a priori latent variables the structural model was drawn, showing linkages supported by the theoretical literature and based on the findings of other researchers. The Baldrige theoretical model hypothesizes and some researchers have found Leadership to have a direct effect on four latent variables: Knowledge Management, Strategic Planning, Staff Focus, and Process Management. In the QSM structural model, the parameter values for the individual measurement variables were fixed to the values obtained in the individual factor CFAs to reduce the number of parameters being measured, as described in Garson (2007.) and Edwin (2007, p. 102). None of the error variances were allowed to

correlate. Correlated error terms are an indication that one or more relevant exogenous variables may have been omitted from the model (James, Mulaik, & Brett, 1982). Incorporation of all four causal paths from Leadership to the four systems variables produced an unacceptable fit for the model, so the paths were then tested one by one to achieve an acceptable fit. The acceptable fit structural model for the QSM data, with two significant paths from Leadership is shown in Figure 4.5. All except one of the paths (Leadership to Strategic Planning) shown in the structural model are significant. Winn's (1996) description of the parts of his model seem appropriate to the Quality Schools structural model as well: The leadership and staff focus variables represent actors within the organization, while strategic planning and knowledge management could be considered preparatory organizational activities. Process management is the organizational action associated with the outcomes of student, stakeholder and market focus, and results. Model fit indices show that this is a good model of the relationships between the latent variables derived from the QSM data.

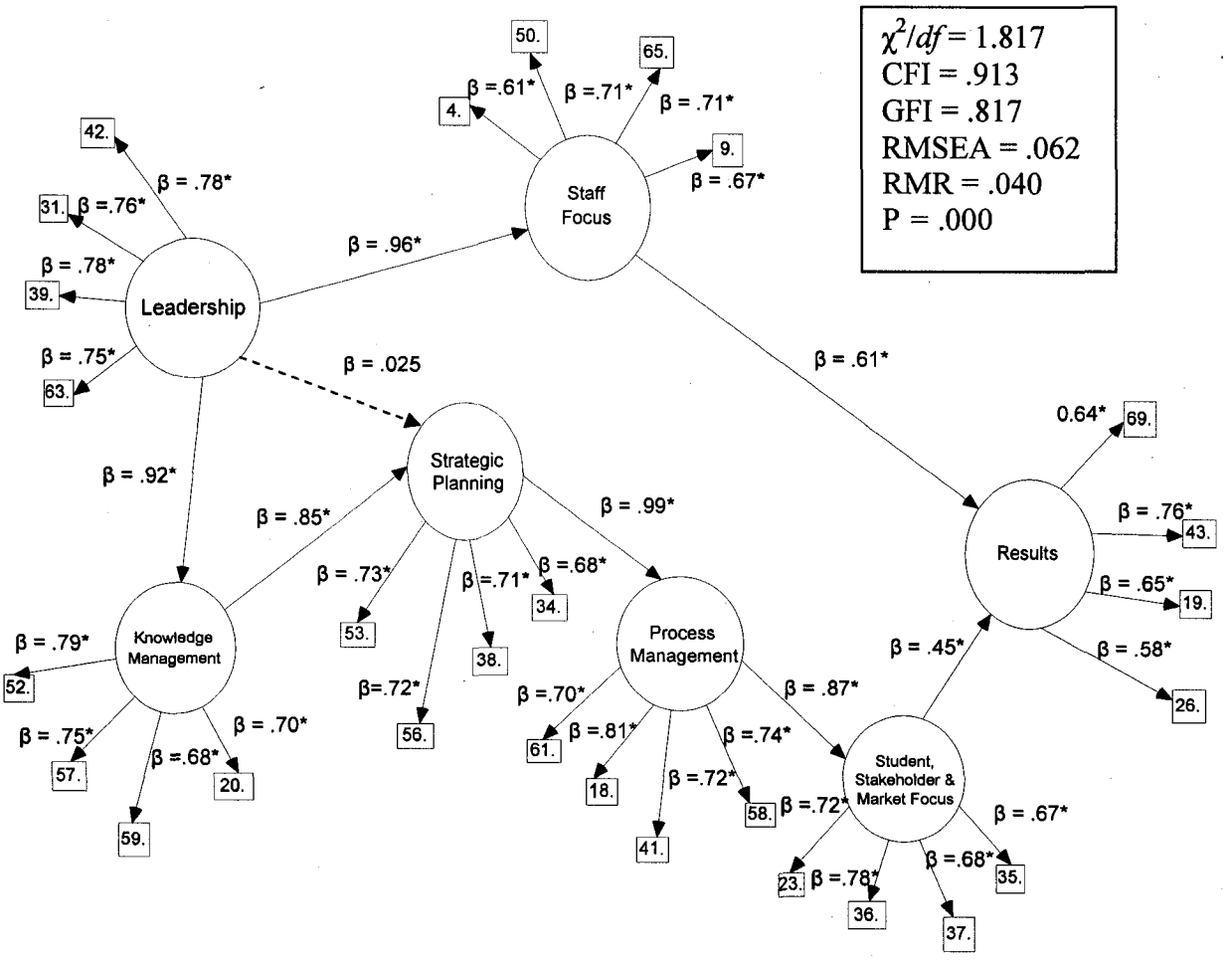

Figure 4.4 Structural Model for QSM Questionnaire Based on Baldrige in Education Factor Constructs

The QSM structural model in Figure 4.4 shows Leadership as the only exogenous latent variable in the structural model for the QSM data, and the only latent variable with an effect on all other latent variables. Leadership has a direct effect on Knowledge Management and on Staff Focus. Additionally, Leadership has a strong indirect effect

(.944) on Results through the mediating variables of Staff Focus, and the path from Knowledge Management through Strategic Planning to Process Management to Student, Stakeholder, and Market Focus; on Strategic Planning (.896) through Knowledge Management as a mediating variable; on Process Management through the mediating variables of Knowledge Management and Strategic Planning (.914); and on Student, Stakeholder, and Market Focus through the mediating variables of Knowledge Management, Strategic Planning, and Process Management (.795). Four endogenous variables have a direct effect on other endogenous variables: Knowledge Management on Strategic Planning; Strategic Planning on Process Management; Staff Focus on Results; and Process Management on Student, Stakeholder, and Market Focus. Knowledge Management also has an indirect effect on Process Management through the mediating variable of Strategic Planning (.967), an indirect effect on Student, Stakeholder, and Market Focus through Strategic Planning and Process Management (.840), and an indirect effect on Results through Strategic Planning, Process Management, and Student, Stakeholder and Market Focus (.377). The indirect effect of Strategic Planning on Student, Stakeholder, and Market Focus through Process Management is .862. All six other factors influence Results in the Quality Schools Model, and four latent variables (Leadership, Knowledge Management, Strategic Planning, and Process Management) affect the other latent variable (outcome) of Student, Stakeholder, and Market Focus. Knowledge Management is the second most influential variable in the model and sets into motion the actions that achieve the results of QSM reform model, with a total effect on two other latent variables that are also systems factors, and both of the variables that

are outcomes in the Baldrige model. Staff Focus has an effect on just one other variable, Results.

Table 4.21 presents the standardized loadings for the variables and factors, which can be used as an indicator of reliability that the items measure the construct they are intended to measure. All of the regression values are moderate (at least 0.5), with most above the 0.7 acceptable threshold for good reliability. The squared multiple correlations are presented in Table 4.22.

Table 4.21 Maximum-Likelihood Parameter Estimates of the QSM Structural Model

			B	*SE*	*p*	β
Knowledge Management	<---	Leadership	.938	.056	***	.920
Strategic Planning	<---	Leadership	.025	.203	.903	.025
Strategic Planning	<---	Knowledge Management	.937	.207	***	.975
Process Management	<---	Strategic Planning	1.048	.052	***	.992
Student, Stakeholder, & Market Focus	<---	Process Management	.872	.060	***	.869
Staff Focus	<---	Leadership	1.011	.058	***	.961
Results	<---	Staff Focus	.618	.122	***	.611
Results	<---	Student, Stakeholder, & Market Focus	.459	.129	***	.449
69	<---	Results	.640			.595
19	<---	Results	.650			.694
39	<---	Leadership	.780			.772
43	<---	Results	.760			.745
61	<---	Process Management	.700			.710

Table 4.21: continued

18	<---	Process Management	.810	.791
26	<---	Results	.580	.603
31	<---	Leadership	.760	.734
42	<---	Leadership	.780	.759
63	<---	Leadership	.750	.762
20	<---	Knowledge Management	.700	.690
59	<---	Knowledge Management	.680	.698
52	<---	Knowledge Management	.790	.782
57	<---	Knowledge Management	.750	.736
50	<---	Staff Focus	.710	.686
9	<---	Staff Focus	.670	.660
65	<---	Staff Focus	.710	.706
4	<---	Staff Focus	.610	.593
36	<---	Student, Stakeholder, & Market Focus	.780	.746
23	<---	Student, Stakeholder, & Market Focus	.717	.657
37	<---	Student, Stakeholder, & Market Focus	.680	.709
35	<---	Student, Stakeholder, & Market Focus	.670	.679
41	<---	Process Management	.720	.728
58	<---	Process Management	.740	.764
34	<---	Strategic Planning	.680	.677
38	<---	Strategic Planning	.710	.698
56	<---	Strategic Planning	.720	.676
53	<---	Strategic Planning	.730	.742

*** Significant probability at .01

Table 4.22 Squared Multiple Correlations for the QSM Structural Model

Factor or variable	R^2
Knowledge Management	.846
Strategic Planning	.996
Process Management	.984
Staff Focus	.924
Student, Stakeholder, and Market Focus	.756
Results	.995
53	.550
56	.457
38	.487
34	.458
58	.584
41	.529
23	.432
36	.557
65	.499
9	.435
52	.611
20	.477
43	.576
26	.363
63	.581
18	.625
61	.503
43	.555
57	.542

Table 4.22: continued

59	.487
31	.539
37	.503
39	.596
50	.471
4	.352
19	.481
69	.354
35	.461

The standardized residual covariances for the QSM structural model are presented in Table 4.23. Three of the Strategic Planning variables have an absolute standardized residual covariance value > 2 but they are randomly attached to other variables measuring different endogenous factors. Since all other fit indices show acceptable values, the three standardized residual covariances > 2 are noted but accepted.

Table 4.23 Standardized Residual Covariances for the QSM Structural Model

Variable	53	56	38	34	58	41	23	36	65	9	52
53	.215										
56	.864	.618									
38	-.417	.139	.254								
34	-.118	.529	.139	-1.146							
58	.051	1.308	.250	-.534	.498						
41	.191	-.213	-.662	-.933	.122	-.111					
23	-.132	.599	.493	-.887	1.117	.763	.000				
36	.224	.332	1.035	.247	.524	-1.016	-.230	-.151			
65	.092	.390	1.488	-.341	.621	-.773	.644	-1.119	.037		
9	-.212	-.052	1.123	-.620	-1.030	.096	.993	-1.656	.778	.170	
52	-.420	.809	-.602	-1.393	.095	.001	-.744	-1.174	-.935	-.436	-.852
20	.233	-.460	-.250	-1.496	-.079	.185	1.105	-.849	1.172	.815	-.562
43	.155	-.718	.477	-.458	-.704	2.103	-.015	-.608	-.763	-.548	-.910
26	-.386	.076	-.156	-.717	-.508	-.209	.338	-1.037	-.992	-.717	-1.506
63	.123	-.079	-.694	-1.269	-1.087	.061	.773	-1.704	.270	1.515	-.444
18	-.821	-.317	-.060	-2.084	.317	-.034	.691	-1.374	.496	.493	-.992
61	.306	.532	.235	-.856	.393	.007	-.073	-1.858	.032	.013	.123
43	.961	1.299	.339	-.925	.032	.967	.524	-1.417	-.245	-.437	-.298
57	.638	1.434	.928	-1.108	1.192	.012	1.192	.266	.246	.247	.194
59	.633	.282	-.023	-1.457	.724	-.474	-1.266	-1.674	.815	.250	-.557
31	.707	.305	.658	-1.239	.025	-.039	1.375	.577	-.406	-.722	-.516

Table 4.23: continued

Variable	20	43	26	63	18	61	43	57	59	31	37
20	.294										
43	.700	-.141									
26	.874	-.801	-.678								
63	1.101	.111	-.089	.168							
18	1.141	-.104	.332	.124	-.361						
61	.253	-.844	-.307	.076	-.359	.001					
43	-.123	.577	-.689	.057	-.109	-.049	.007				
57	.716	-.772	-.344	-.668	.046	1.209	1.229	.871			
59	-.088	-.038	1.531	.251	-.094	.591	.104	.748	-.141		
31	2.079	.312	.317	.341	1.040	.564	.708	1.206	-.330	.465	
37	1.181	-.559	-.731	-.582	-.877	-.678	.472	1.898	-.646	.523	.087
39	.658	.354	-.331	.020	-.566	1.257	-.919	-.498	-.635	.373	.493
50	.202	.319	-.992	.460	-.030	-.445	-.155	.124	-.867	.192	.436
4	1.735	-.880	-.683	.362	.269	-.282	.506	1.645	-.477	.063	.615
19	2.177	-.310	-.201	.200	2.614	.721	.225	2.089	.747	.929	.980
69	-.031	1.043	-.530	1.090	1.125	-.705	.741	1.122	1.370	.194	1.029
35	-.321	.261	-.807	-.905	-.125	-.722	-.661	.972	-.228	1.765	-.321

Table 4.23: continued

Variable	39	50	4	19	69	35
39	-.435					
50	-1.032	-.151				
4	-.868	-.480	-.059			
9	.112	-.084	.613	.991		
69	-.392	-1.096	.101	-.462	-.642	
35	-.165	.348	-.238	.787	-1.196	.089

4.5 Qualitative Results

4.5.1 Development of Codes, Categories, and Themes

The five interview questions connect to specific research questions as illustrated in Table 4.26. After coding identifying patterns, the interview data, and identified pattern codes, I intended to use the data to guide the development of themes through the research questions. For example, an initial broad category of analysis was "value of the model for students." This code, in theory, relates well to research question 2 regarding the importance of the QSM. However, in reality, this approach, while convenient for synthesizing the quantitative and qualitative data, was too narrow and limiting of the

themes that emerged from the data. While I was aware of and in agreement that "codes should relate to one another in coherent, study-important ways" (Miles and Huberman, 2004), I developed the codes from the data of patterns and themes as they emerged from the participants' perspectives.

Table 4.24: Relationship between Interview Questions and Research Questions

Interview Questions	Research Questions
Is the QSM important to you?	Research Question 1: To what extent do administrators, staff, and community members perceive Process Management to be important as a part of the Quality Schools in their schools?
What do you know about the QSM? What is working well with the QSM?	Research Question 2: To what extent do administrators, staff, and community members perceive Process Management to be in practice as a part of the Quality Schools Model in their schools?
What could be improved with the QSM? What recommendations or suggestions do you have for improving the QSM?	Research Question 3: Are there statistically significant differences between the extent to which respondents perceive Process Management to be important and the extent to which they perceive Process Management items to be in practice as part of the QSM

The initial categories of analysis resulted from the research questions themselves. They were value of the model, challenges of the model, and suggestions for improvement. From these, I created second level categories that related primarily to the groups of individuals for whom the model was valuable or challenging. Table 4.27 identifies the items in the three categories.

A third level of coding expressed the ways in which the model was valuable or challenging for the stakeholder groups. For example, the second-level code "value of the model for students" had the following third-level codes: future success, growth in learning, voice and buy-in in their education, focus on their individual needs and accountability.

This approach resulted in the identification of themes that relate to the research questions in an overlapping manner. For example, one theme that emerged was the demanding nature of the QSM for teachers. Interview data that contributed to this theme may have had a first level code of "challenges of the model," a second-level code of "challenges for staff", and a third-level code of "model is demanding, a lot of work". This data could be interpreted as connecting to research question 3 concerning perceptions about what needs to be improved with the QSM. The same unit of data, however, might have had a first level code of "value of the model", a second-level code of "value for staff", and a third-level code of "empowerment to make decisions about teaching", connecting therefore to research question 1 about the model's importance. Ultimately, what was most important to me was the diverse data that contributed to the theme of the

demanding nature of the QSM for teachers, not how that data could be assigned to a specific research question.

The presented data that are the qualitative results are those that represent the perspectives of, and about, staff working in schools that have implemented the Quality Schools Model. The qualitative results are organized by themes that closely align with the eleven variables for Process Management.

Table 4.25: Detail of the Three Levels of Interview Categories

Level 1	**Level 2**	**Level 3**
	Value for students	Future success Growth in learning Individual needs Buy-in for education
	Value for parents	Children's accomplishment Hope for the future
Level 1	**Level 2**	**Level 3**
Value of the Model	Value for staff	Teacher autonomy Pride in model's progress
	Value for community	Buy-in, local pride
		Vision of where we are going Shared leadership
	Value for all	Always improving Model is consistent
	For students	Change Model is more rigorous
	For parents	Change Getting buy-in

Table 4.25: continued

Level 1	Level 2	Level 3
		Keeping up with content
Challenges of the Model		Knowing how to assess
		A lot of work
	For staff	Multiple teaching strategies
		Cultural differences
		Change
		Teacher turnover
		Technical aspects
		Buy-in understanding
	For Community	Change
		Community
	For all	Change in system
		Slow implementation
	Communication with home	
Improvement Suggestions	continuous improvement	
	teacher training	

4.5.2 The Main Themes of the Interviews as Related to Process Management

Four themes emerged from the interviews that were relevant to Process Management. They are: student achievement, focus on quality instruction, meeting our students' needs, and including multiple inputs when designing services.

Theme 1: Improving student achievement. Item 41 of the Process Management category states that "our district will change or redesign programs and offerings in order to improve student achievement." Of the interviewees' responses that related to processes, this area was by far the most often mentioned with ten of the interviewees claiming that student achievement has improved. It is important to note that the ten

represented each of the interviewed stakeholder groups. The following quotes illustrate this sentiment:

The QSM is a, "concentrated effort to improve achievement of all students."

"We've made AYP for the past three years."

"Yes, it is better than the old system, we had kids who just graduated without doing any work, and they know it too. Now we have a lot of kids that don't graduate on time, this is good."

"Students' test scores are better than ever in the district"

Theme 2: Focusing on quality instruction. Several respondents also mentioned the second theme, focusing on quality instruction, as an important part of the QSM. Respondents commented on the relevance of the instruction in the QSM and how there is an effort to individualize teaching. Process Management items 12 and 58 are statements that address instructional quality and are thus deemed relevant to this theme. The following quotes illustrate this sentiment that the quality instruction as a part of the QSM.

"The consistency of the instruction is the best thing; kids are not just passed along and placed on the honor roll."

"Teaching kids to design their own learning units and telling them the teacher will tell them if that design meets requirements."

"Instruction is driven by standards and the district assessments ensure that there is no slipping through the cracks."

Theme 3: .Meeting the individual needs of the students. The third theme to emerge from the interviews was that of the QSM meeting the students' individual needs. Nine of the interview participants commented on how attractive the QSM is because it treats the students as individuals and not as a part of a traditional grade. The Process Management items 18 (our school district uses information about student learning needs to design new instructional services) and 21 (Our district has a set way to gather information on our students' needs) both are relevant to this theme. Furthermore, the interview participants suggest that both of these processes are a part of their district. The following quotes provide evidence of this sentiment.

"It is important to look at the child as an individual and base work on grade placement."

"...instruction is individualized for the student."

"All the students are working individually; grade placement does not affect the lessons."

"The QSM is self-paced and meeting the individual student needs is important in preparing kids."

Theme 4: Including multiple inputs when designing services. The final theme from the interview data that is relevant to the area of Process Management is the concept of seeking input from a variety of sources when designing services. One of the premises of the QSM is that it includes a shared vision that is representative of all of district stakeholders. With this in mind, the development of services also includes input from several areas; it is more than the district administration dictating what will take place.

The participants indicated that such an approach is present in their district. Items 33 (students and staff provide input on non-instructional services and 61 (our district uses information from multiple sources when designing non-instructional services) are tied to this theme. The following participants' responses suggest that these two areas of Process Management are in place.

"It is an active movement and vision to prepare kids for the future"

"There is shared leadership that builds ownership and a consensus approach toward decision making"

"Shared vision is good"

4.6 Summary

The results of the quantitative and qualitative data provided the cohort with a wealth of information from which conclusions can be drawn. With regard to Process Management, the quantitative results can be directly interpreted for this criterion while the data from the interviews has a less immediate connection to this Baldrige in Education Category. Overall, the statistical analysis of the quantitative data yielded results that were consistent. This was also true for the qualitative results that were easily placed into broad categories or themes. The final chapter of this dissertation will examine these results and then explore the implications of this study.

CHAPTER 5: SUMMARY AND DISCUSSION

As an aide to the reader, this first section of the final chapter restates the research problem and summarizes the methodology used in this study. Subsequent sections of the chapter summarize the results and discuss their implications.

5.1 Problem and Methodology

The purpose of this research was to examine faculty, staff and community members' perception of the importance and existence of the seven Baldrige in Education Criteria in three rural Alaska school districts. Specifically, the emphasis of the research was to explore one of these criteria, Process Management's relationship to the QSM. Furthermore, the research results are intended to be used by school districts to assist in their understanding and implementation of the QSM.

As explained in Chapter Three, the study utilized a mixed (concurrent-nested) methods approach to answer the four research questions. I gathered the quantitative data through an electronically administered questionnaire that was sent to all district employees with a district email account. I collected the qualitative data through interviews that were administered face-to-face to both staff and community members of the school districts.

I completed a descriptive statistical analysis of the data to answer the first three research questions while for question four, as a group, the cohort developed a structural equation model (SEM) to illustrate the causal relationships that are supported among the seven Baldrige in Education Criteria. Prior to building the SEM, we performed a confirmatory factor analysis using AMOS 7.0.

I coded the interview data using an inductive approach that applied labels in response to the data. I then identified the codes as belonging to a pattern which allowed a hierarchy or different levels of codes, each successively more detailed. From there, I coded the data for those responses that are specific to the Process Management.

5.2 Discussion and Conclusion of Research Questions

5.2.1 Question 1

To what extent do administrators, staff, and community members perceive Process Management to be important as a part of the Quality Schools Model in their schools?

The examination of the perception of importance in the questionnaire's Process Management items revealed that 93.8 % of the respondents either agreed or strongly agreed that the items were important. Item 30 (our district regularly reviews and analyzes student learning and then creates processes the improve student success) showed the most favorable response with 96.7 % of the respondents responding either "agree" or "strongly agree" that it is important. Responses for Item 33 (students and staff provide input for key non-instructional services) although strong, were the least favorable with 90.5% of the respondents either agreeing or strongly agreeing that it is important. When examined from the various demographic perspectives, the data showed no instances of significance when comparing job classification, the three levels of educational experience and the two levels of QSM experience.

The participants' responses (in the interviews) that can be indirectly tied to Process Management indicated that processes are an important part of the QSM. The

repeated mention of facets of the QSM that are dependent on established processes, e.g., continuous improvement, allow me to make this claim: the consistency of the instruction is the best thing; kids are not just passed along and placed on the honor roll.

I believe that the results show that as a whole, the sampled populations in the three districts feel that Process Management is an important part of the QSM. Furthermore, the respondents' sentiment that Process Management is important supports much of the literature on effective schools research that is cited in Chapter Two. Ron Edmonds' (1979) synthesized the common characteristics of schools that are achieving success. Lezotte's (1991) summary of these characteristics included frequent measurement of academic progress through a variety of assessment procedures. Good and Brophy (1985) claimed the importance of processes management by stating that processes are the reason why there is such variance in academic achievement. Alford's (2002) writings on organizational theory and in particular, coproduction, note that the simplification of complex work is aided through sound processes. In sum, the respondents' perception that attention to processes is important is significant because without this sentiment, the implementation of Processes Management strategies may be slowed by an unreceptive staff.

5.2.2 Question 2

To what extent do administrators, staff, and community members perceive Process Management to be in practice as a part of the Quality Schools Model in their schools?

My research's quantitative data indicate that 63.8% of those who completed the questionnaire either agreed or strongly agreed that processes that lead to improvements are in practice in their district. The Process Management item 21 (our district has a set way to gather information on our students' needs) had the highest number of responders either agreeing or strongly agreeing. In contrast statement 58 (our district uses information gathered from our students to improve instructional services) had the lowest number of responders marking "agree" or "strongly agree."

The results to the question's first hypothesis (there would be a difference in responses based on job description) were the most interesting of the first three research questions. There were statistically significant differences between teachers and administrators for the Process Management questions. The responses of the demographic group for the second hypothesis (years of education experience) yielded no differences that were significant. While the third hypothesis which proposed that the difference in the respondents' years of experience, also did not show a level of significance with this comparison.

On the qualitative side, the responses to the interview questions again suggested that the districts have established processes as a part of their continuous improvement efforts. It is likely that the district improvements mentioned by the respondents are based on processes that are a part of the implementation of the Quality Schools Model. The following quotes are evidence of this sentiment.

"It's given the schools a common direction, but we can get there in our own ways."

"Consistency is the best thing about the new system- no more honor roll at one school for average student while at another it is only a few who make it- this levels the playing field."

The main conclusion to draw from the results of this question is that the staff of the districts did not, as they did in question 1, agree as much that processes are in practice, and showed greater differences based on job classification. Furthermore, the results for this question suggest that administrators are more keenly aware of their district's use of processes than are the teachers and classified staff. A possible reason for this difference may be found in the U.S. Department of Education's (2004) research on Comprehensive School Reform that found that large scale reform is a process over time. It may be inferred then, that a better understanding of the use of processes (by the teachers and classified staff) will take time and that administrators who are likely to initiate the use of processes are more likely to agree with the statement. A further explanation for the differences in the responses may be attributed to what Detert et al. (2000) found in their research of schools and quality principles. Their research showed that that teachers often focused exclusively on discipline and classroom management processes rather than teaching and learning processes which are the focus of this study's Process Management items. As a way to close this gap, I suggest that the district level administration of the three districts train and then direct their principals to spend more time emphasizing (to the teachers) the important role that processes play in a school district. This resulting efficiencies that are created by the use of processes should, encourage a more thorough use of processes.

Districts may also choose to recognize this difference as an opportunity for improvement. That is, the advantage of holistically tackling improvement through established processes may lead to a higher level of student achievement. Fullan's (2001b) research supports this ideal of holistic reform that is based on well established processes.

5.2.3 Question 3

Are there statistically significant differences between the extent to which respondents perceive Process Management to be important and the extent to which they perceive Process Management items to be in practice as part of the Quality Schools Model in their schools?

The overall sentiment of the respondents was that in practice, the three districts are giving attention to their processes. The percentage of those responding agree or strongly agree that processes are in practice is however, less than for the responses measuring respondents' perception of the importance of process management. In all instances the mean score was higher for the importance scale than for the practice scale. Overall, the data suggest that Process Management is generally understood to be in practice.

With regard to the three hypotheses, job classification, years of education experience, and years in the QSM showed significant results when comparing the perception of importance and practice of Process Management.

As is the case for the other two research questions, the qualitative data confirm that the respondents feel that processes are an important part of the QSM. With regard to the differentiation of respondents as detailed in the hypotheses, although the sample was

small, I can infer from the interviews that the school employees were more conscious of the use of processes than were the community members. Community members' responses were more general, e.g., the QSM is important because "it prepares them (the students) to be successful in post-secondary schools." There was not however, enough information in the interviews to make the distinction between importance and practice of the use of processes.

The main conclusion to be drawn from research question 3's data is that the findings indicate that administrators generally have a better sense of district level processes that are in practice. I feel that the consistent difference between the two groups' responses can be attributed to the previously mentioned concept of structural pose. That is, the structural pose of the respondents, in the case of the administrators, education and years of experience, can explain why there is such variation in the survey results.

The data also suggest that putting into practice what the research supports as the basis of systemic reform is not occurring as quickly as it might in the three districts. Campbell and Fullan (2006) state that one of the pieces of a systemic effort is to develop precision in daily practices for improving learning. Marzano's (2005) analysis of the QSM using the Comprehensive School Reform Criteria as a guide found, as did this research, that there is a need to improve and increase the number of processes. Marzano for example, found no evidence in his studied districts of an explicit method to gain external support. While this research showed that although the respondents deemed the process items as important, none of theses items (in practice) had a mean of 3 that is equal to agree. Thus, it is clear that many of the respondents are either not aware that the

process items in question are in practice or, the items are not in place. When the three districts review this data and then use it to improve, it is critical that they seek to close this difference between importance and practice. Juran, (as cited in Hoyer and Hoyer, 2001) states that 80% of process problems results from 20% of causes.

5.2.4 Question 4

What are the relationships among the Baldrige Criteria that describe the Quality Schools Model?

The cohort's primary purpose in including this question was to determine if the quantitative data from the three districts would support a structural equation model (SEM) for the seven Baldrige Criteria. The major finding is that the model although statistically acceptable, did not fully confirm the theoretical model used with the Baldrige in Education Criteria (see Figure 2.1). The cohort's model did however, show leadership as the model's driver; it had a direct causal influence on two of the components, Staff Focus and Knowledge Management. But, it was not with nearly as much significance as that which is shown in other Baldrige models. The smaller number of causal paths was likely limited by the number of cases in the research sample. That is, more causal paths might have been supported by the model with a greater sample size for the survey. This study also showed that leadership has an indirect causal effect on the other four Baldrige criteria (Process Management, Strategic Planning, Student, Stakeholder, Market Focus, and Results).

One can infer from the Cohort's SEM that Knowledge Management (information and analysis) tends to influence Strategic Planning which in turn affects Process

Management. Belohlav (as cited in Winn and Cameron, 1998) support this finding when he states that "This sequence is consistent with commonly accepted strategic planning" (p.507). Furthermore, March and Simon (as cited in Winn and Cameron, 1998) confirm this by stating "rational problem-solving models, which suggest that collection and analysis of information should precede strategic planning" (p.507).

I was surprised by the model because it did not show, as does the Baldrige model, that Process Management has a direct causal effect on Results. I expected that Staff Focus would affect Process Management and that Process Management would in turn have a direct effect on Results. Because our SEM shows that leadership directly affects Staff Focus, I can assume that having strong shared leadership will positively affect the staff and that this will in turn, lead to better results. Many interview comments highlighted the importance and value of shared leadership within the QSM. Comprehensive School Reform (CSR) criteria identify creating shared leadership and a broad base of responsibility for reform efforts as one of eleven criteria essential for systemic reform. My findings are consistent with Marzano's (2005) research that showed that the CSR criterion of shared leadership is addressed within the QSM. This two-step relationship of Leadership affecting Staff Focus and then Results is not however, fully consistent with other findings that show Process Management having a direct effect on Results. My first hypothesis for this research question, the variable of Process Management has a direct effect on the Baldrige Criteria variable Result, is thus, not supported by these findings.

Process Management's causal relationship with student and stakeholder satisfaction provides evidence that the design and delivery of the school district's processes are important to the satisfaction of this group and should be managed from their perspectives. My second hypothesis (the variable of Process Management affects the Baldrige Criteria variable Results through the Faculty and Staff Focus Criteria is thus, also not supported by this model. The implications of the model not supporting the two hypotheses, is discussed in this chapter's final section.

In general, the model shows Process Management to be less influential than expected. I write this because scholars who have studied the Baldrige relationships, e.g., Cole (as cited in Winn and Cameron, 1999, p. 508) consistently emphasize the importance of process improvement in achieving quality. It is surprising then, that Process Management has only one direct causal effect on one of the other criteria.

To summarize, in this study, in which structural equation modeling was used to explore the relationships of the seven Baldrige in Education Criteria using quantitative data gathered from the three school districts, Leadership was shown to be the dominant criterion of the seven Baldrige in Education Criteria. While the normal caveats of a limited sample size apply to this study's data, they do provide a good framework from which to conduct further studies on the impact of the seven dimensions on the Quality Schools Model's outcomes.

5.3 Implications of the Research Findings

The results of this research allow me to identify four implications that I feel are important for school districts considering implementing the Quality Schools Model of

educational reform. They are: 1) systemic educational reform is dependent on well established processes; 2) the components of a systemic reform must each be given the proper level of attention; 3) a school district's shared vision must be comprehensive to allow optimum learning conditions through the effective establishment of coproduction; and 4) Total Quality Management practices should be included as a way to adequately motivate staff to do their best.

This study includes several references to research e.g., Fullan (2001a), Grayson (2006), that claim that processes in education are an intricate part of a reform. In the case of the three districts studied, after reviewing the positive trend lines of the students' academic achievement, one may assume that important processes for the three districts are in place. In this research however, although the eleven Process Management items are recognized by the districts' participants as important, they are in most cases only partially felt to be in practice. I can thus infer that there is an apparent overt appreciation for the use of processes that does not include a thorough use of them in practice. Process Management items 33 and 58 of the questionnaire illustrate this gap in importance and practice with a respective difference in responses of .74 and .85. While the intuitive understanding (of the respondents) that the management of processes is important is encouraging, it is obvious that the three districts need to do more to help staff and stakeholders understand why this area of their organization needs attention. It is thus fair to state that it is a mistake for districts to continue to rely upon their stakeholders' intuition with processes. Grayson (2006), Karathanos and Karathanos (2005) both conclude that attention to processes will lead to organizational improvement.

Furthermore, they feel that holistically tackling improvement through established processes may lead to a higher level of student achievement. Fullan's (2001a) research supports this ideal of holistic reform that is based on well established processes. The implication for the three districts then, is that there needs to be a greater emphasis placed on managing processes. As a way to do this, I feel that the three districts should include this area in their staff evaluation tool.

A second implication of this research, the implementation of the QSM is a complex endeavor, can be confirmed from the established structural equation model. After examining the model, it is clear that although the relationships of the constructs are not as intertwined as they are in other such research, it is evident that several of the quality criteria are interrelated. I believe that it is thus fair to suggest that this research supports the concept that effective school reform is a systemic endeavor (Fullan, 2001a; 2003, Duffy, 2003). It is important to note that although leadership is the independent variable of the model, it does not have a direct effect on results. Thus, I am confident in stating that an attempt to fix low performing schools with by hiring a leader to do it all will fail. Such improvement, as the model suggests can only occur when the other studied constructs are given the appropriate level of attention.

My hope is that districts will choose to recognize this finding as the basis for improvement. That is, an improvement effort that does not give attention to the constructs such as those used in the Baldrige in Education assessment may have a limited long term effect. Or, simply structuring school improvement by only focusing on those items that are deemed to have an immediate influence on outcomes may not lead to the intended

sustained level of change. It should be noted that this research does not compare the Baldrige method of organizational analysis with other such tools and hence, cannot be used to suggest that the Baldrige approach is the best way to make such an analysis. I do feel however, that there is sufficient data from this research to suggest that a holistic improvement effort is superior to the more common piecemeal approach of education reform

There are some, e.g., Kaplan, and Norton(1996), Karathanos and Karathanos (2005), who recognize the need for a holistic approach to educational reform. They advocate that schools follow business' lead by using a balanced scorecard as a way to keep track of the different components of their organization. Such an approach toward self assessment will allow management to be more diagnostic, and in turn, prescriptive in their efforts to improve the overall performance of the district.

With this approach in mind, it is interesting to note that the current practice of school intervention that is a part of the No Child Left Behind Act gives little or no attention to the majority of the quality constructs of school districts that are examined in this study. For example, in Alaska the primary intervention that the state is using for its failing schools is to mandate that instruction is tied to its grade level expectations (GLEs). The GLEs serve as the basis of the state's summative student assessments. While this attention to the results of a district is valid and should be considered, I agree with the mentioned research that suggests that it would be better if the state's intervention practices included attention to the other areas that can have both a direct and indirect effect on student achievement.

A third implication of this research can be drawn from one of the four components of the QSM, a shared vision. Both the interview responses and the questionnaire data that are tied to this component indicated that the district's shared vision is highly valued. I believe that this inclusive approach toward schooling lends itself to establish a more fluid teacher-student exchange that can lead to a better learning environment. This ideal is supported by Watson (2002, p.56) who states "To achieve long-term success, an organization must have a purpose that elicits the dedication of its people."

The traditional pedagogical exchange of schooling often leaves many students without a motivation to learn. As a way to create optimum learning conditions for students, the QSM, through learning profiles and stakeholder involvement (shared vision), is designed to counter the traditional one-way instructional exchange that may lead to student apathy. Porter (2006) states that establishing coproduction in education is the optimum level of exchange that will lead to a high degree of student learning. In this exchange the student and stakeholders move from passively consuming the education service to a being active participants. Whitaker's (1980) description of coproduction through mutual adjustment states that there is a reactive approach toward a situation that is based on a high degree of communication. That is, both the teacher and the student are in a regular state of adjustment that leads to an effective learning environment. Daft (2002), uses the term reciprocal interdependence to define this level of exchange.
I believe that a meaningful shared vision that included input from all stakeholders can help schools form a good understanding of coproduction and that this will in turn bolster

their reform efforts. Sizer's research (as cited in O'Neil, 1995) supported the need for shared vision,

> "You're not going to get significant, long-term reform unless you have subtle but powerful support and collaboration among teachers, students, and the families of those students in a particular community. Without that, you can get short-term changes in instruction, but you won't get at the heart of reform." (p.4)

By giving sufficient attention to this concept, there should be an increase in student achievement. I know that such an undertaking must include, as it does with the Quality Schools Model, a sufficient level of stakeholder involvement. The third implication of this research then, is that districts should strive to attain a good level of stakeholder involvement that will lead to a coproduction of education services. If done well, it will likely contribute to an increase in student achievement.

A fourth and final implication of this research is what can be gleaned from the continuous improvement component of the QSM that includes practices from Total Quality Management (TQM). Because applying these practices may help to cause an increased sense of staff ownership in the school district, I think that it is important that educators understand the effect that TQM practices can have on all members of their organization. Total involvement by all staff will cause individuals to believe that if their ideas count and are respected, then the foundation for continuous improvement is in place (Gemberling et al.,2004).

The need to motivate students is a critical piece of the learning equation. The need to maintain a motivated teaching force is another important aspect of this process that

does not, I believe, receive nearly as much attention as it should. Deming (2000) views the effective use of quality management practices as the crux of getting workers to do their best. I think that the relationship between administration and teachers in a school district must be similar to what is proposed above with the concept of mutual adjustment between student and teacher. School districts giving attention to Deming's fourteen quality points that are explained in Chapter Two will help administrators create a work environment where all staff feels valued. I know that the key to building this sense of value is through an effective communication system and effective process management. I also know that if these two are not done well, then staff can lose sight of the improvement target.

People that believe in the quality management approach hold that view that a problem is not looked at in isolation but is instead considered as a part of the whole. For example, low student performance is not automatically attributed to the student teacher nexus. I know that in low performing school districts the TQM approach would be a welcome change for many teachers who are often identified as the sole reason for this poor performance. The implication of this research then, is that teachers' motivation can be enhanced through the use of TQM practices. Finally, by utilizing an assessment tool such as the Malcom Baldrige Criteria for Performance Excellence, a district can create a scorecard of the identified key organizational components that are an intricate part of implementing the QSM.

5.4 Limitations and Recommendations for Future Research

Although I have made several generalizations that are based on the collected data, it is important to note that the limited sample size must be considered when reviewing this study. Another consideration is that the questionnaire was broad in its scope so that it addressed each of the seven Baldrige areas. The breadth of the data collected for each area was perhaps not as wide as it might have been. A third area for concern is that because I am the superintendent of the Lake and Peninsula School District, respondents may have shown bias on their responses on the questionnaire and interviews. The cohort attempted to counter this by making the survey anonymous and by having Bob Crumley act as the point person for communications with LPSD staff. A fourth limitation of this study is that the use of our structural equation model should only be considered with districts which are similar to the three in this study. It would be wrong to generally assume that it applied to all rural Alaska school districts. Finally, as is the case with most research, this study is a snapshot of information that was gathered in two short periods of time. The results of this research should thus, not be viewed as anything more than this.

With regard to recommendations for future study, I would like to recommend an evaluative research project conducted on these districts that would test the hypothesis that achievement increases are the result of the QSM. A second recommendation is to research one of the four QSM components to a deeper level so that the findings would have a greater impact on the QSM's implementation. My third recommendation for future study is to more thoroughly analyze the stakeholders who are involved with the QSM's implementation. An evaluative approach toward this study might identify those

traits that stakeholders must possess in order to effectively take on this educational reform model. Finally, I would like to see a comparative study done with similar school districts, e.g., enrollment, number of schools, and demographics, that do and do not implement the QSM. I believe that the cited comparative study of QSM districts and non-QSM districts (Coladarci et al., 2005) was weak in that it only used student achievement data. A more thorough examination of districts using a tool such as the Baldrige in Education Criteria would provide more information from which more significant conclusions could be drawn.

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Appendix A: Baldrige in Education Criteria

Education Criteria (Total Points: 1,000)	Point Values
Leadership (120 points)	
1. Organizational leadership	**70**
2. Social responsibility	**50**
Core values:	
• **Visionary leadership:** "Leaders set direction to create a student focused learning –oriented climate, clear and visible values and high expectations" (NIST 2005b, 1)	
• **Learning-centered education:** "To develop the fullest potential of all students, education organizations need to afford them opportunities to pursue a variety of avenues to success. . . . A learning-centered education supports this goal by placing the focus of education on learning and the real needs of students. Such needs derive from market and citizenship requirements" (NIST2005b, 1).	
Strategic and operational planning (85 points)	**40**
1. Strategy development	**45**
2. Strategy deployment	
Core values:	
• **Focus on the future:** "A focus on the future requires understanding the short-and longer-term factors that affect	

your organization and the education market" (NIST 2003b, 2).	
Student, stakeholder and market focus (85 points)	
1. Student, stakeholder, and market knowledge.	**40**
2. Student and stakeholder relationships and satisfaction	**45**
Core values:	
• **Agility**: "Is an increasingly important measure of your organizational effectiveness. It requires a capacity for faster and more flexible response to the needs of your students, and stakeholders" (NIST 2003b, 3).	
• **Managing for innovation**: "Means making meaningful change to improve an organizations programs, services, and processes and to create new value for the organization's stakeholders. Innovation should lead the organization to new dimensions of performance" (NIST 2003b, 4).	
Measurement, analysis, knowledge management (90 points)	
1. Measurement and analysis of organizational performance	**45**
2. Information and knowledge management	**45**
Core values:	
• **Management by fact:** "Organizations depend on the measurement and analysis of performance. Such measurements should derive from the organization's	

needs and strategy, and they should provide critical data and information about key processes and results" (NIST 2005b, 4).	
Faculty and staff focus (85 points)	
1. Work systems	**35**
2. Faculty and staff learning and motivation	**25**
3. Faculty and staff well-being and satisfaction	**25**
Core values: • **Organizational & personal learning:** Requires a well-educated approach • to organizational and personal learning. Organizational learning includes both "continuous improvement of existing approaches and adaptation to change, leading to new goals and/or approaches" (NIST 2005b, 2). • **Valuing faculty, staff, and partners:** Means commitment to (staff and faculty) development and well-being. Increasingly, this involves "more flexible, high-performance work practices tailored to faculty and staff with diverse workplace and home life needs" (NIST 2005b, 3).	
Process management (85 points)	
1. Learning-centered processes	**50**
2. Support processes	**35**

Core values:

- **Systems perspective:** The Baldrige criteria provide a systems perspective for managing your organization and its key processes to achieve results-performance excellence. The seven Baldrige categories and the core values form the building blocks and the integrating mechanism for the system. However, successful management of overall performance requires organization-specific synthesis, alignment, and integration. Synthesis means looking at your organization as a whole and builds upon key education requirements, including your strategic objectives and action
- plans. Alignment means using the key linkages among requirements given in the Baldrige Categories to ensure consistency of plans, processes, measures, and actions. "Integration builds on alignment so that the individual components of your performance management system operate in a fully interconnected manner" (NIST 2005b, 5).

UNIVERSITY OF ALASKA
FAIRBANKS

Institutional Review Board

909 N Koyukuk Dr. Suite 212, P.O. Box 757270, Fairbanks, Alaska 99775-7270

Appendix B:

IRB Approval Letter

April 23, 2007

To: Eric Madsen, Ph.D
Principal Investigator

From: Bridget Stockdale, Research Integrity Administrator
Office of Research Integrity

Re: IRB Protocol Application

Thank you for submitting the IRB protocol application identified below. I have administratively reviewed this protocol and determined that it meets the requirements specified in federal regulation for exempt research under 45 CFR 46.101(b) (2). Therefore, I am pleased to inform you that your protocol has been approved. .

Protocol #: 07-16

Title: *Beliefs and Practices Related to the QSM in Alaska*

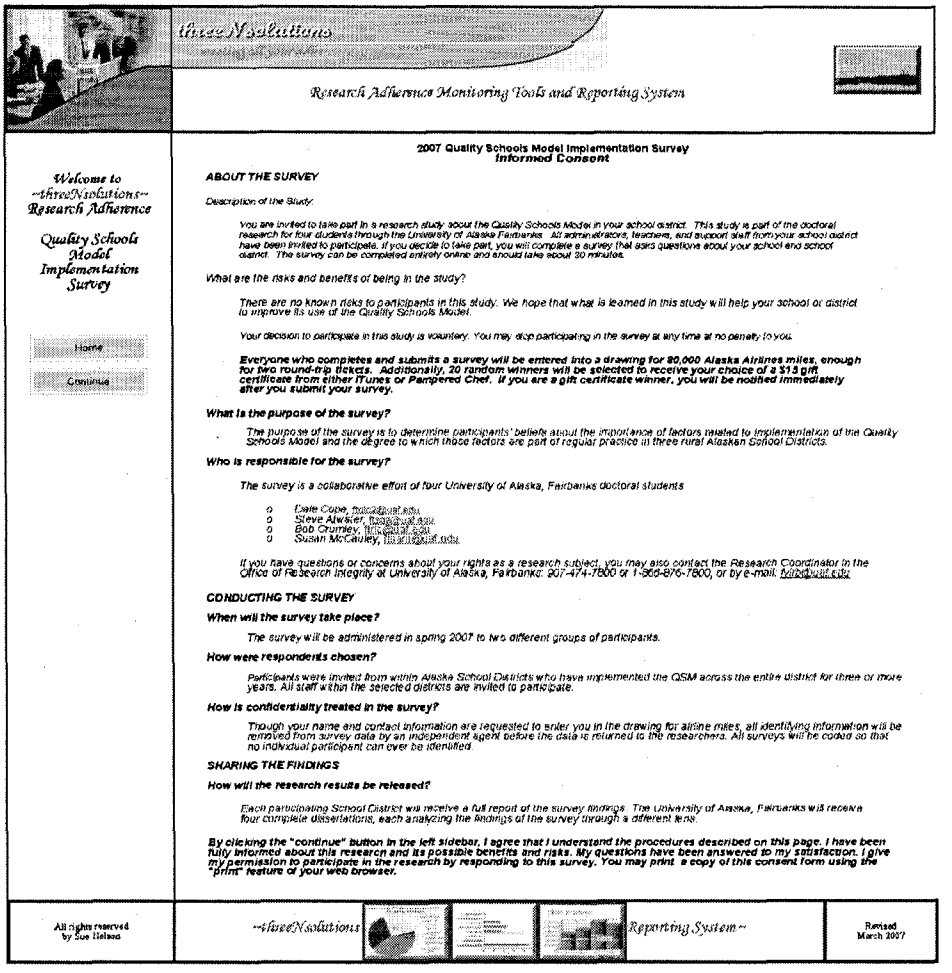
Level: Exempt

Received: March 21, 2007 (orig)
April 22, 2007 (rev)

Approved: April 22, 2007

Exempt research does not require annual continuing review, but please submit any modifications or changes to this protocol to fyirb@uaf.edu for administrative review. Modification Request Forms are available on the IRB website (http://www.uaf.edu/irb/Forms.htm). Please contact the Office of Research Integrity if you have any questions regarding IRB policies or procedures.

Appendix C: QSM Questionnaire



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Quality Schools Model Implementation Survey

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2007 Quality Schools Model Implementation Survey
Informed Consent

ABOUT THE SURVEY

Description of the Study:

You are invited to take part in a research study about the Quality Schools Model in your school district. This study is part of the doctoral research for four students through the University of Alaska Fairbanks. All administrators, teachers, and support staff from your school district have been invited to participate. If you decide to take part, you will complete a survey that asks questions about your school and school district. The survey can be completed entirely online and should take about 30 minutes.

What are the risks and benefits of being in the study?

There are no known risks to participants in this study. We hope that what is learned in this study will help your school or district to improve its use of the Quality Schools Model.

Your decision to participate in this study is voluntary. You may stop participating in the survey at any time at no penalty to you.

Everyone who completes and submits a survey will be entered into a drawing for 80,000 Alaska Airlines miles, enough for two round-trip tickets. Additionally, 20 random winners will be selected to receive your choice of a $15 gift certificate from either iTunes or Pampered Chef. If you are a gift certificate winner, you will be notified immediately after you submit your survey.

What is the purpose of the survey?

The purpose of the survey is to determine participants' beliefs about the importance of factors related to implementation of the Quality Schools Model and the degree to which those factors are part of regular practice in three rural Alaskan School Districts.

Who is responsible for the survey?

The survey is a collaborative effort of four University of Alaska, Fairbanks doctoral students

- *Dale Cope, [redacted].edu*
- *Steve Alwikler, [redacted].edu*
- *Bob Crumley, [redacted].edu*
- *Susan McCauley, [redacted].edu*

If you have questions or concerns about your rights as a research subject, you may also contact the Research Coordinator in the Office of Research Integrity at University of Alaska, Fairbanks: 907-474-7800 or 1-866-876-7800, or by e-mail, [redacted]@uaf.edu

CONDUCTING THE SURVEY

When will the survey take place?

The survey will be administered in spring 2007 to two different groups of participants.

How were respondents chosen?

Participants were invited from within Alaska School Districts who have implemented the QSM across the entire district for three or more years. All staff within the selected districts are invited to participate.

How is confidentiality treated in the survey?

Though your name and contact information are requested to enter you in the drawing for airline miles, all identifying information will be removed from survey data by an independent agent before the data is returned to the researchers. All surveys will be coded so that no individual participant can ever be identified.

SHARING THE FINDINGS

How will the research results be released?

Each participating School District will receive a full report of the survey findings. The University of Alaska, Fairbanks will receive four complete dissertations, each analyzing the findings of the survey through a different lens.

By clicking the "continue" button in the left sidebar, I agree that I understand the procedures described on this page. I have been fully informed about this research and its possible benefits and risks. My questions have been answered to my satisfaction. I give my permission to participate in the research by responding to this survey. You may print a copy of this consent form using the "print" feature of your web browser.

~threeNsolutions Reporting System~

Revised March 2007

The Quality Schools Model
Survey Directions

There are 72 statements in the survey. For each statement, you should mark a response in the column on the *left* of the question, and mark another response in the column on the *right* of the question.

The column on the left is to record the "*Degree to which I believe & agree that this is important*", and the column on the right is to record the "*Degree to which I see this in practice in my district*". For each statement, there are four response choices.

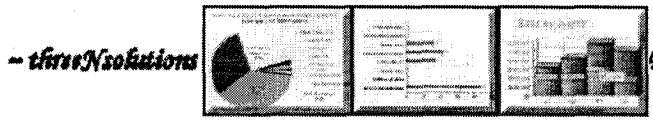
When you complete the questions on each page, click the "Next" button to continue. Each page is numbered so you can note your progress through the survey. Following the survey items, there are some questions about your job title, years of teaching, etc. (these are the survey *demographics*).

Once you've completed the survey items and the demographic section, the last step is to provide your name and contact information to be eligible for a drawing for 80,000 Alaska Airlines miles – our way of saying thanks for taking the time to provide us with your thoughtful responses.

Also, random survey participants will win your choice of either an i-Tunes or *Pampered Chef* gift card worth $15. Gift card winners will be notified immediately.

Be assured that the identifying information such as your name and address will be disassociated from your survey responses before the information is returned to the researchers.

[BEGIN SURVEY]



Belief: Degree to which I believe and agree that this is important				**Statement**	**Practice:** Degree to which I see this in practice in my district			
				one answer from each group is required before going on to the next page				
Strongly Disagree	Disagree	Agree	Strongly Agree	**IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING**	Never	Occas-ionally	Freq-uently	Always
☐	☐	☐	☐	1. Our district builds relationships with colleges, universities, vocational schools and other post-graduation training programs to help students transition from high school.	☐	☐	☐	☐
☐	☐	☐	☐	2. District leadership provides for staff and stakeholders to have input into the values, directions, and performance expectations of our school district.	☐	☐	☐	☐
☐	☐	☐	☐	3. Our district plans effectively for transitions of personnel into leadership positions.	☐	☐	☐	☐
☐	☐	☐	☐	4. Our district has an effective training program in continuous improvement as part of our new employee orientation.	☐	☐	☐	☐
☐	☐	☐	☐	5. Our personnel and human resource services operate efficiently and make a positive contribution to our school district's quality goals.	☐	☐	☐	☐
☐	☐	☐	☐	6. Our district has a set way to use information from multiple sources to achieve better performance.	☐	☐	☐	☐
☐	☐	☐	☐	7. We revise and change the types of performance data we collect as our needs and directions change.	☐	☐	☐	☐
☐	☐	☐	☐	8. District leadership requires legal and ethical behavior from themselves, staff, and students.	☐	☐	☐	☐
☐	☐	☐	☐	9. Faculty and staff are asked to identify the areas in which they would like to receive professional development.	☐	☐	☐	☐
☐	☐	☐	☐	10. Before we develop anything new, we assure that it will be of a higher quality than what we currently are doing.	☐	☐	☐	☐
☐	☐	☐	☐	11. Our schools continually evaluate how we determine the educational needs of our students.	☐	☐	☐	☐
☐	☐	☐	☐	12. Our district has steps in place to assure that instructional services are of high quality.	☐	☐	☐	☐
☐	☐	☐	☐	13. Our schools have data than enables us to monitor trends in the levels of student/family satisfaction over the past three years.	☐	☐	☐	☐

CONTINUE SURVEY

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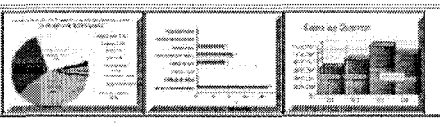

Belief: Degree to which I believe and agree that this is important				**Statement**	**Practice:** Degree to which I see this in practice in my district			
Strongly Disagree	Disagree	Agree	Strongly Agree		Never	Occasionally	Frequently	Always
				one answer from each group is required before going on to the next page IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING				
☐	☐	☐	☐	**14.** Systems are in place to train and educate faculty and staff to achieve district goals.	☐	☐	☐	☐
☐	☐	☐	☐	**15.** Our district keeps up with changing national, state, or local requirements.	☐	☐	☐	☐
☐	☐	☐	☐	**16.** Information is provided to me so that I know how resources are allocated to achieve our goals.	☐	☐	☐	☐
☐	☐	☐	☐	**17.** Our district measures staff learning and development in areas such as collaboration, and knowledge/skill sharing.	☐	☐	☐	☐
☐	☐	☐	☐	**18.** Our school district uses information about student learning needs to design new instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**19.** Our district can document that our quality measurements examine the most important factors that predict gains in student learning and student/family satisfaction.	☐	☐	☐	☐
☐	☐	☐	☐	**20.** District and school staff can quickly get information they need to make improvements in their work.	☐	☐	☐	☐
☐	☐	☐	☐	**21.** Our district has a set way to gather information on our students' needs.	☐	☐	☐	☐
☐	☐	☐	☐	**22.** Our district's performance is analyzed and the data is used in the strategic plan to improve our district.	☐	☐	☐	☐
☐	☐	☐	☐	**23.** Our district gathers information from former students and/or their parents for continuous improvement.	☐	☐	☐	☐
☐	☐	☐	☐	**24.** Our school district's strategic plan is based upon an analysis of a variety of data.	☐	☐	☐	☐
☐	☐	☐	☐	**25.** Performance review results are analyzed and used to improve district leadership and staff performance.	☐	☐	☐	☐
☐	☐	☐	☐	**26.** In general, parents are increasingly supportive of the professional staff and support staff of the school district.	☐	☐	☐	☐

CONTINUE SURVEY

~ threeNsolutions

Belief: Degree to which I believe and agree that this is important				**Statement**	**Practice:** Degree to which I see this in practice in my district			
Strongly Disagree	Disagree	Agree	Strongly Agree	***one answer from each group is required before going on to the next page*** IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING	Never	Occasionally	Frequently	Always
☐	☐	☐	☐	27. Our district ensures that software and hardware systems (computers, internet, networks) are current with our district's needs.	☐	☐	☐	☐
☐	☐	☐	☐	28. I know how well our students are performing compared to similar schools.	☐	☐	☐	☐
☐	☐	☐	☐	29. Our district provides a computerized data management system for staff to utilize.	☐	☐	☐	☐
☐	☐	☐	☐	30. Our district regularly reviews and analyzes student learning and then creates processes that improves student success.	☐	☐	☐	☐
☐	☐	☐	☐	31. District leadership works to ensure that everyone knows what is going on.	☐	☐	☐	☐
☐	☐	☐	☐	32. District leadership regularly communicates to the staff and community about the importance of student/family satisfaction.	☐	☐	☐	☐
☐	☐	☐	☐	33. Students and staff provide input for key non-instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	34. Our district involves staff and other stakeholders in improving the strategic planning process.	☐	☐	☐	☐
☐	☐	☐	☐	35. Our schools have procedures in place to assure that student/family complaints are resolved effectively and promptly.	☐	☐	☐	☐
☐	☐	☐	☐	36. Our district makes it easy for students, parents, and stakeholders to comment on the school district programs or services.	☐	☐	☐	☐
☐	☐	☐	☐	37. Our schools regularly initiate contact with parents and students to assess the levels of satisfaction with the schools.	☐	☐	☐	☐
☐	☐	☐	☐	38. Our school district's strategic plan addresses ways to significantly improve student learning and a student/family focus.	☐	☐	☐	☐
☐	☐	☐	☐	39. Stable and consistent district leadership helps lead toward successful QSM implementation.	☐	☐	☐	☐

CONTINUE SURVEY

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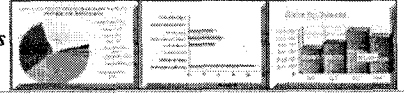

Belief: Degree to which I believe and agree that this is important				**Statement**	**Practice:** Degree to which I see this in practice in my district			
				one answer from each group is required before going on to the next page				
Strongly Disagree	Disagree	Agree	Strongly Agree	IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING	Never	Occasionally	Frequently	Always
○	○	○	○	40. This district has effective ways to communicate important information to students.	○	○	○	○
○	○	○	○	41. Our district will change or redesign programs and offerings in order to improve student achievement.	○	○	○	○
○	○	○	○	42. District leadership does more than just talk about quality; they are very much involved in making it happen.	○	○	○	○
○	○	○	○	43. Our district tracks staff well-being, satisfaction, and development and continuously improves these areas.	○	○	○	○
○	○	○	○	44. Information about best practices is collected and shared among staff members.	○	○	○	○
○	○	○	○	45. Our district has a written shared vision which is communicated with all staff and students.	○	○	○	○
○	○	○	○	46. School staff are adequately prepared to handle disasters and emergencies.	○	○	○	○
○	○	○	○	47. District leadership guides the district to practice good citizenship.	○	○	○	○
○	○	○	○	48. District leadership regularly communicates to the staff and community about the importance of quality in our system.	○	○	○	○
○	○	○	○	49. District leadership is trusted by students, staff, and community.	○	○	○	○
○	○	○	○	50. Our district encourages faculty and staff to be involved in district-level decision making.	○	○	○	○
○	○	○	○	51. Staff members are given prompt positive feedback when they make contributions to school district quality.	○	○	○	○
○	○	○	○	52. The quality data our district gathers covers a broad scope and comes from a variety of sources.	○	○	○	○

CONTINUE SURVEY

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Belief: Degree to which I believe and agree that this is important				**Statement**	**Practice:** Degree to which I see this in practice in my district			
Strongly Disagree	Disagree	Agree	Strongly Agree	***one answer from each group is required before going on to the next page*** **IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING**	Never	Occa-sionally	Freq-uently	Always
☐	☐	☐	☐	**53.** Our district has a realistic timeline for achieving important goals and objectives.	☐	☐	☐	☐
☐	☐	☐	☐	**54.** Our district explains the overall strategic planning process to staff and students so that everyone knows the performance requirements.	☐	☐	☐	☐
☐	☐	☐	☐	**55.** Our district recruits, hires, and retains the best possible faculty and staff.	☐	☐	☐	☐
☐	☐	☐	☐	**56.** Our district's strategic plan is reviewed on a continuous basis by various levels of staff and translated into individual performance plans.	☐	☐	☐	☐
☐	☐	☐	☐	**57.** The student/family data we collect is translated into solutions to student/family problems.	☐	☐	☐	☐
☐	☐	☐	☐	**58.** Our district uses information gathered from our students to improve instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**59.** Our district use comparisons with similar school districts to guide the improvement of quality and to improve instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**60.** Our district regularly assesses the satisfaction levels of staff members.	☐	☐	☐	☐
☐	☐	☐	☐	**61.** Our district uses information from multiple sources when designing non-instructional services.	☐	☐	☐	☐
☐	☐	☐	☐	**62.** Our non-instructional services have performance measures that are analyzed to improve these services.	☐	☐	☐	☐
☐	☐	☐	☐	**63.** District leadership creates conditions for ongoing staff learning.	☐	☐	☐	☐
☐	☐	☐	☐	**64.** Our business/finance services operate efficiently and make a positive contribution to the district's quality goals.	☐	☐	☐	☐
☐	☐	☐	☐	**65.** Our district assesses the effectiveness of our training programs for staff members.	☐	☐	☐	☐

CONTINUE SURVEY

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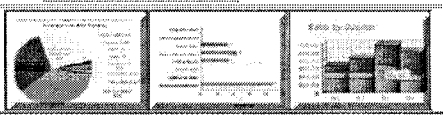

Belief: Degree to which I believe and agree that this is important				Statement	Practice: Degree to which I see this in practice in my district			
Strongly Disagree	Disagree	Agree	Strongly Agree	**one answer from each group is required before going on to the next page IF YOU LOG OUT OF THE SURVEY, YOU MUST START OVER AT THE BEGINNING	Never	Occasionally	Frequently	Always
☐	☐	☐	☐	66. District leadership works to develop the future leaders of our district.	☐	☐	☐	☐
☐	☐	☐	☐	67. Our district has a way to determine basic student needs based on their career interests, learning styles, family needs, etc.	☐	☐	☐	☐
☐	☐	☐	☐	68. Our staff effectively communicates and shares knowledge and skills across our departments, jobs, and locations.	☐	☐	☐	☐
☐	☐	☐	☐	69. Our student/family support services (e.g. counseling services, health services) operate efficiently and make a positive contribution to our school district's quality goals.	☐	☐	☐	☐
☐	☐	☐	☐	70. Our district leadership works ethically, transparently, and is trusted by students, staff, and communities.	☐	☐	☐	☐
☐	☐	☐	☐	71. When our schools review our student/family satisfaction results, they are able to break the data into appropriate groups.	☐	☐	☐	☐
☐	☐	☐	☐	72. Our district leadership consistently emphasizes a focus on student learning when communicating to staff members.	☐	☐	☐	☐

Demographic Questions

1. School District	Lake & Peninsula Kuspuk Bering Strait Chugach
2. Gender	Male Female
3. What is your job classification	Classified-classroom based Classified-non-instructional Teacher Administrator
4. Total years of Education Work Experience	First Year 1 to 3 Years 4 to 7 Years 7 to 10 Years 11 to 15 years more than 15 years
5. Years of Experience in your current district	First Year 1 to 3 Years 4 to 7 Years 7 to 10 Years 11 to 15 years more than 15 years
6. Years of Experience with the Quality School Model	First Year 1 to 3 Years 4 to 7 Years 7 to 10 Years
7. Have you participated in a school reform effort in another district	Yes No
7a) If so, how successful did you consider it to be	Not Applicable Very Successful Partially Successful Not Successful

ENTER DRAWING!

Last step of the Quality Schools Model Survey!

Congratulations! 

You have successfully answered all the survey and demographics questions.
Enter yourself in the drawing for 80,000 Alaska Airlines miles AND a chance to win your choice of either an I-Tunes or Pampered Chef gift card worth $15!

Tell us how to contact you when you win:

Name	
Address	
Phone Number	(enter as: xxx-xxx-xxxx)
E-Mail Address	

Thank you for participating and Good Luck in the drawing!

Enter Prize Drawings!

~threeNsolutions  *Reporting System~*

DrawingConfirmation

Survey Completion Confirmation

Congratulations!

You have successfully completed the Quality Schools Model Survey and your name has been entered in the Alaska Airlines miles drawing.

The winner will be drawn on May 15, 2007 and will be notified by June 1, 2007.

Thank-you!

Click here to exit this survey.

Appendix D: Interview Informed Consent and Protocol

IRB #: 07-16 **Date: Approved: April 22, 2007**

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Description of the Study:

You are being asked to take part in a research study about the school in your community. We are conducting this study as part of our college work at University of Alaska Fairbanks. As part of that study, we are interviewing some staff and community members. You are being asked to participate because the principal in your village said that you are someone who knows about the school. Please read this form and ask any questions you may have before you agree to be in the study.

If you decide to take part, you will be asked some questions about the school in your community. The interview should take about 45 minutes

Risks and Benefits of being in the Study:

There are no known risks to you for participating. We hope that what is learned in this study will help your school or district to improve.

Confidentiality:

Your answers to the questions will be kept anonymous. We will not ask for your name.

Voluntary Participation:

It is up to you to decide if you want to participate in the interview. You may say that you don't want to, or you may stop taking part at any time.

Contact Information:

If you have questions about the interview, please contact one of the researchers listed below.

Steve Atwater ftsga@uaf.edu	Susan McCauley ftsam@uaf.edu
Bob Crumley ftrlc@uaf.edu	Dale Cope ftdlc2@uaf.edu

If you have questions or concerns about your rights as a research subject, please contact the Research Coordinator in the Office of Research Integrity at University of Alaska, Fairbanks: (907) 474-7800 or (1-800) 876-7800, or by e-mail: fyirb@uaf.edu

SIGNATURE AND CONSENT TO PARTICIPATE:

Federal law and University regulations require that we obtain signed consent for participation in research projects involving human subjects. After you have read this

project's purpose, procedures, benefits, and risks, please indicate your consent by signing the attached statement.

I have been fully informed of the above described research and its possible benefits and risks. My questions have been answered to my satisfaction. I have been provided with a copy of this consent form, and I give my permission to participate in the research by responding to this survey.

Name: _____

(please print)

Signature:_____

Date:_____

Implementation of the QSM

Interview Protocol

Interviewer Name _____Interview Date _____

Name of Person Interviewed _____ District: LPSD KSD BSSD

Category: 1. Administrator 2. Teacher 3. Parent 4. School Board Member 5. Elder 6. Community

Introduction: "I am studying how education and your school district may have changed in the last few years since starting to implement the QSM. The questions I'm asking you today all have to do with education and the QSM. I'm interested in your beliefs and opinions, and really appreciate your time today. Everything you tell me today will be kept confidential and you will not be identified personally in the results of this research. This interview should take approximately 45 minutes. I would like to record notes while we are talking. Is that all right with you?"

1. Would you tell me a little bit about yourself? How long have you lived here?

(Other – how long have you been an administrator, teacher, school board member? How long have you been in education?; How many children do you have? What is your connection to the school?)

2. How is this school district different than it was, say, three years ago?

3. Describe the QSM in your district.
Probes: Who is involved? What is happening? (PM) If the current district leadership were to leave, would the QSM continue? (L)

4. What kinds of changes have you seen in the connection between school and the community since implementation of the QSM?
Probes: How are Elders sought and heard? (SSMF) Has community support for the school increased, and vice versa? (SSMF) Are teachers involved in community activities? (SF) What suggestions do you have for involving parents and the community in implementation of the QSM? (SSMF)

5. How are different groups, like students, parents, and the community involved in processes of the district such as development and review of the shared vision, and the development of goals and standards?
Probes: Do you know your district shared vision? (SP, MAKM) Did you have a role in developing/reviewing the shared vision? (SP, PM, MAKM)

Have you ever been asked to help make plans for the school or school district?

6. How has student achievement in your district changed over the last three years?

Probes: How is the school (district) trying to improve student achievement? (R, SSMF, MAKM) Has implementation of the QSM had a direct effect on student achievement, positive or negative? (R, SSMF) How does the school identify what it is that students want and need?

7. How does your school district (school) communicate with parents and the community?

Probes: Have you ever been contacted by the school to see if you were happy about how things are going in the school? If a parent wanted to find out how his or her child was doing in school, how would they get that information? How does the school handle complaints or concerns by parents or community members? How does the school district communicate with Elders?

8. How does the school help students make connections and stay involved in their culture and with Elders?

Probe: How does the school district help new staff become familiar with the community?

Closing: Thank you for participating in this interview today. I appreciate and respect what you have said to me. Your district will receive a copy of the results of this research. Please let me know if you would like me to send you a message when that information goes to your district.

Appendix E: CFA Results for Individual Factors

Table E.1 Maximum-Likelihood Parameter Estimates for the Leadership Factor

Variable			B	*SE*	*p*	β	R^2
66	<---	Leadership	.530	.049	***	.679	.461
72	<---	Leadership	.468	.045	***	.660	.436
63	<---	Leadership	.583	.048	***	.745	.555
47	<---	Leadership	-.606	.033	***	.679	.462
49	<---	Leadership	.561	.052	***	.668	.447
42	<---	Leadership	.537	.051	***	.779	.575
39	<---	Leadership	.627	.048	***	.775	.606
31	<---	Leadership	.605	.047	***	.758	.601
8	<---	Leadership	.633	.050	***	.519	.269

$\chi^2/df = 1.476$
RMR = .020
RMSEA = .047
CFI = .984
GFI = .964

Table E.2 Standardized Residual Covariances for the Leadership Factor

	8	39	42	31	49	47	63	72	66
8	.000								
39	-.705	.000							
42	.413	.348	.000						
31	.421	.098	-.219	.000					
49	-.140	-.019	-.425	.749	.000				
47	.807	-.235	-.526	-.876	1.263	.000			
63	-.260	.254	.080	.050	-.898	.193	.000		
72	-.057	-.142	.431	.019	-.181	-.364	.169	.000	
66	-.428	-.289	-.032	.050	-.176	.918	.045	-.155	.000

Table E.3 Maximum-Likelihood Parameter Estimates for the Staff Focus Factor

Variable			B	*SE*	*p*	β	R^2
51	<---	Staff Focus	.554	.055	***	.663	.439
55	<---	Staff Focus	.410	.051	***	.550	.302
14	<---	Staff Focus	.500	.050	***	.657	.432
4	<---	Staff Focus	.516	.057	***	.606	.368
9	<---	Staff Focus	.565	.055	***	.666	.443
50	<---	Staff Focus	.600	.055	***	.705	.500
65	<---	Staff Focus	.591	.053	***	.707	.497
68	<---	Staff Focus	.467	.055	***	.578	.334

$\chi^2/df = 2.026$
RMR = .028
RMSEA = .070
CFI = .961
GFI = .954

Table E.4 Standardized Residual Covariances for the Staff Focus Factor

	68	50	65	9	4	14	55	51
68	.000							
50	-.619	.000						
65	.067	-.116	.000					
9	-.098	.029	.643	.000				
4	-.196	-.700	-.346	.671	.000			
14	.360	-.286	.509	-.664	1.757	.000		
55	.245	.975	-.299	-.862	-.770	-.695	.000	
51	.404	.763	-.585	-.072	-.497	-.816	1.188	.000

Table E.5 Maximum-Likelihood Parameter Estimates for the Knowledge Management Factor

Variable			B	*SE*	*p*	β	R^2
25	<---	Knowledge Management	.588	.055	***	.683	.466
22	<---	Knowledge Management	.512	.047	***	.688	.473
59	<---	Knowledge Management	.489	.049	***	.648	.420
57	<---	Knowledge Management	.638	.052	***	.748	.559
52	<---	Knowledge Management	.614	.047	***	.789	.623
59	<---	Knowledge Management	.525	.050	***	.675	.489
20	<---	Knowledge Management	.578	.052	***	.700	.456
7	<---	Knowledge Management	.433	.048	***	.578	.358

$\chi^2/df = 2.066$
RMR = .023
RMSEA = .071
CFI = .969
GFI = .955

Table E.6 Standardized Residual Covariances for the Knowledge Management Factor

	7	59	20	52	57	40	22	25
7	.000							
59	.647	.000						
20	-.519	-.010	.000					
52	.301	-.069	-.531	.000				
57	.055	.616	.132	.024	.000			
40	-.627	-.916	.661	.361	.754	.000		
22	.295	.146	.478	.134	-1.403	-.533	.000	
25	-.406	-.523	.036	-.057	-.036	-.453	1.266	.000

Table E.7 Maximum-Likelihood Parameter Estimates for the Process Management Factor

Variable			B	*SE*	*p*	β	R^2
21	<---	Process Management	.468	.050	***	.608	.370
12	<---	Process Management	.516	.048	***	.685	.470
18	<---	Process Management	.668	.048	***	.813	.661
61	<---	Process Management	.562	.051	***	.698	.487
41	<---	Process Management	.578	.050	***	.719	.517
58	<---	Process Management	.600	.050	***	.741	.425
10	<---	Process Management	.518	.051	***	.652	.549
6	<---	Process Management	.496	.049	***	.648	.420

$\chi^2/df = 2.485$
RMR = .026
RMSEA = .084
CFI = .958
GFI = .947

Table E.8 Standardized Residual Covariances for the Process Management Factor

	6	58	10	41	61	18	12	21
6	.000							
58	-.489	.000						
10	.876	-.362	.000					
41	-.350	.291	.464	.000				
61	.479	.545	-.485	.231	.000			
18	.239	.296	-.809	.024	-.317	.000		
12	.402	-.725	1.697	-.878	-.335	.011	.000	
21	-1.488	-.035	-.622	.146	-.020	.564	.640	.000

Table E.9 Maximum-Likelihood Parameter Estimates for the Results Factor

Variable			B	*SE*	*p*	β	R^2
43	<---	Results	.650	.055	***	.324	.578
26	<---	Results	.448	.054	***	.418	.331
64	<---	Results	.356	.051	***	.406	.246
70	<---	Results	.489	.052	***	.408	.408
69	<---	Results	.557	.059	***	.246	.406
19	<---	Results	.532	.055	***	.331	.418
5	<---	Results	.437	.053	***	.578	.324

$\chi^2/df = 1.715$
RMR = .024
RMSEA = .058
CFI = .973
GFI = .970

Table E.10 Standardized Residual Covariances for the Results Factor

	5	19	69	70	64	26	43
5	.000						
19	.574	.000					
69	-.031	-.527	.000				
70	-1.258	-.389	.264	.000			
64	2.049	-.376	-.181	.227	.000		
26	-.296	.360	-.342	.799	.012	.000	
43	-.169	.239	.394	.200	-.736	-.356	.000

Table E.11 Maximum-Likelihood Parameter Estimates for the Strategic Planning Factor

Variable			B	*SE*	*p*	β	R^2
45	<---	Strategic Planning	.428	.055	***	.535	.286
38	<---	Strategic Planning	.567	.051	***	.713	.508
53	<---	Strategic Planning	.565	.048	***	.735	.540
56	<---	Strategic Planning	.612	.054	***	.722	.521
54	<---	Strategic Planning	.551	.054	***	.664	.441
34	<---	Strategic Planning	.501	.047	***	.684	.468
16	<---	Strategic Planning	.583	.056	***	.674	.455

$\chi^2/df = 2.50$
RMR = .027
RMSEA = .084
CFI = .960
GFI = .956

Table E.12 Standardized Residual Covariances for the Strategic Planning Factor

	16	34	54	56	53	38	45
16	.000						
34	-.431	.000					
54	-.828	-.522	.000				
56	-.750	.251	.596	.000			
53	.513	.192	.518	.203	.000		
38	1.371	.243	-.198	-.663	-.635	.000	
45	-.227	.138	.327	.747	-1.213	.370	.000

Table E13 Maximum-Likelihood Parameter Estimates for the Student, Stakeholder and Market Focus Factor

Variable			B	*SE*	*p*	β	R^2
15	<---	Student, Stakeholder, and Market Focus	.374	.048	***	.531	.282
13	<---	Student, Stakeholder, and Market Focus	.526	.060	***	.594	.353
23	<---	Student, Stakeholder, and Market Focus	.579	.059	***	.649	.421
36	<---	Student, Stakeholder, and Market Focus	.665	.053	***	.622	.613
35	<---	Student, Stakeholder, and Market Focus	.545	.053	***	.783	.451
37	<---	Student, Stakeholder, and Market Focus	.536	.051	***	.671	.462
1	<---	Student, Stakeholder, and Market Focus	.321	.050	***	.680	.203
67	<---	Student, Stakeholder, and Market Focus	.473	.053	***	.451	.362

$\chi^2/df = 2.199$
RMR = .030
RMSEA = .075
CFI = .951
GFI = .947

Table E. 14 Standardized Residual Covariances for the Student, Stakeholder and Market Focus Factor

	67	1	37	35	36	23	13	15
67	.000							
1	.877	.000						
37	-.388	-1.351	.000					
35	-.326	-.226	-.040	.000				
36	-.457	-.204	.930	.883	.000			
23	.307	.559	-.330	-.434	-.407	.000		
13	.692	.830	.263	-1.335	-.593	.550	.000	
15	.543	.277	-.936	.451	-1.046	.988	1.135	.000